

REPORT OF RCRA COMPLIANCE EVALUATION INSPECTION

At

ESE Alcohol, Inc.
310 KS-96
Leoti, KS 67861
(316) 212-0174

EPA Identification Number: None

On

March 12 and 15-16, 2021

By

U.S. ENVIRONMENTAL PROTECTION AGENCY
Region 7
Enforcement & Compliance Assurance Division

1.0 INTRODUCTION

I performed a Resource Conservation and Recovery Act (RCRA) compliance evaluation inspection (CEI) remote virtual and a visual inspection at ESE Alcohol, Inc. (ESE Alcohol), located in Leoti, Kansas, on March 12 and 15-16, 2021. I conducted the inspection under the authority of RCRA Section 3007(a), as amended. During the inspection, I collected the information necessary to determine compliance with the applicable regulatory and statutory requirements. This report and attachments present the results of the inspection. Based on the information obtained during the inspection, I inspected the facility as a non-generator of hazardous waste and used oil generator. Neither the State of Kansas or EPA RCRA inspections have previously been conducted at this facility.

2.0 PARTICIPANTS

ESE Alcohol:

Duane Berning, President (about 40 years at the facility)
Rob Carson, Director of Operations (about 40 years at facility)
Terry Bobo, Consultant – Environmental Management

U.S. Environmental Protection Agency (EPA):

Timothy Evans, Life Scientist, ECAD
Joseph Heafner, Life Scientist, ECAD

Kansas Department of Health and Environment (KDHE)
Darrell Shippy, Bureau of Environmental Field Services (BEFS)
Doug Dumler, BEFS

3.0 INSPECTION PROCEDURES

The inspection was conducted as a multi-media inspection. On March 12, 2021, at approximately 10:30 a.m., Joseph Heafner, EPA, and I called and spoke with Mr. Berning. We introduced ourselves and explained the purpose of our call. Mr. Heafner and I informed Mr. Berning that we intended to conduct Clean Water Act (CWA) and RCRA inspections, respectively, on Monday March 15, 2021. Mr. Berning, Mr. Heafner, and I established a date and time for the visual, on-site inspection. Mr. Heafner also explained his need to conduct sampling of material including, but not limited to, wastewater in lagoons, mash/biosolids resulting from ethanol production, and soil samples. I asked Mr. Berning if I could contact him later that day to provide him with and discuss inspection documents. Mr. Berning and I agreed to meet later that day. I called Mr. Berning at approximately 11:30 a.m. and informed him that I would e-mail the following opening conference documents: pre-inspection COVID-19 related questions, a site info verification report, a blank waste stream table, and a copy of the RCRA Facility Access Information Sheet (March 2013), which provides inspection authority. I also explained my need to collect accurate information and provided Mr. Berning with a copy of Title 18 U.S. Code, Sections 1001 and 1002.

On March 15, 2021, prior to arriving at the facility, Mr. Heafner and I met Derrell Shippy and Doug Dumler, KDHE Bureau of Environmental Field Services, in Scott City, Kansas to coordinate and discuss our respective inspections. Messrs. Shippy and Dumler were accompanying Mr. Heafner and me as observers. Messrs. Heafner, Shippy, Dumler, and I arrived at ESE Alcohol at approximately 1:10 p.m. A drive-by inspection was only possible on the south perimeter of the facility. No apparent issues were observed. Messrs. Heafner, Shippy, Dumler, and I then proceeded to the facility office, introduced ourselves, and were greeted by Messrs. Berning, Carson, and Bobo. We proceeded to a conference/meeting room for the in-briefing. Mr. Heafner and I presented Messrs. Berning, Carson, and Bobo with our business cards and EPA credentials. Mr. Heafner conducted his in-briefing and explained the purpose and order of his inspection. As part of the in-briefing, Messrs. Berning, Carson, and Bobo were made aware of ESE Alcohol's confidentiality rights and informed that a Confidentiality Notice would be provided at the end of the inspection to make, or not to make, any claims. Messrs. Berning, Carson, and Bobo acted as the facility representatives for the RCRA portion of the multi-media CEI.

During the inspection, discussions consisted of wastes generated and waste management practices. I conducted a visual inspection of what the facility referred to as the "grizzly" unloading pit for grain, centrifuge and solid load out (mash/biosolids storage) building, load out building, grinder and cookers building, truck wash bay, fermentation area, distillation room, boiler room, area outside, south of settling basins/lagoons, and the mash/biosolids windrow area north of the facility.

Information collected during the inspection was documented in a bound notebook on the Kansas Department of Health and Environment (KDHE) Hazardous Waste Generator Compliance Inspection Report checklist (Attachment 1), and as discussed below.

At the conclusion of the inspection, I summarized the findings and recommendations with Messrs. Berning, Carson, and Bobo. I provided Mr. Berning with a Confidentiality Notice (Attachment 2) which he signed as acknowledgement of receipt. Mr. Bobo advised the facility to claim the name of the treated seed supplier as proprietary. Mr. Berning made a confidentiality claim for seed treatment safety data sheets (SDSs) and material safety sheets (MSDSs). It should be noted that Mr. Berning stated that the SDSs and MSDSs, provided to me during the inspection, may not be an accurate representation of treated seeds received at the facility. I also provided Mr. Berning with a Receipt for Documents and Samples (Attachment 3) and Notice of Preliminary Findings (NOPF) (Attachment 4), which Mr. Berning signed as acknowledgement of receipt. Both the Confidentiality Notice and the Receipts for Documents and Samples listed the name of the facility's treated seed supplier. Therefore, Attachments 2 and 3 are also being managed as confidential business information. The following inspection documents and compliance assistance handouts were provided to ESE Alcohol:

Inspection Documents

Confidentiality Notice

*Notice Regarding Proprietary/Confidential Business Information Submitted to or Collected by
EPA In Connection with Inspections*

Receipt of Documents and Samples

Notice of Preliminary Findings

Instructions for Responding to a Notice of Preliminary Findings

EPA Compliance Assistance Handouts

EPA Industry Sector Notebooks List

EPA Compliance Assistance Centers

Properly Managing Used Oil Filters

Requirements – Used Oil Management Standards

KDHE Compliance Assistance Handouts

Spent Fluorescent Lamps Containing Mercury (hazardous waste-1995-G1)

Used Oil Burning and Fuel Specifications (HW-1998-G2)

Used Oil Generators (HW-1999-G1)

Recycling and Disposal of Aerosol Cans (hazardous waste-2002-G2)

Hazardous Waste Determinations and Documentation (hazardous waste-2011-G1)

Any federal regulatory citations noted in this report are as adopted by reference in the authorized Kansas regulations.

4.0 FINDINGS AND OBSERVATIONS

4.1 General Information/Facility Description/RCRA Status

According to the KDHE issued Kansas Water Pollution Control Permit (Attachment 8), ESE ferments treated seed grain to produce denatured ethanol for use as a fuel. Mash solids, facility wash water, trailer wash water, boiler blowdown and water softener regenerate are directed to one of six earthen settling basins.

Each of the six basins goes through a fill/settling/ decanting/drying/solids removal cycle. After the mash solids have settled, mash water is decanted into the west irrigation cell (formerly the cooling water holding pond) for irrigation storage.

Solids are periodically removed from the settling basins and either directly applied to farmland for agricultural benefits or stored at a central stockpile location prior to land application. A centrifuge is used for mash dewatering with the centrate discharged to one of the six mash water settling basins and the separated solids stored at a central stockpile location prior to land application.

Cooling tower blowdown, boiler blowdown, water softener reject and waste recharge flows, reverse osmosis concentrate and cleaning flows, facility wash down and seed trailer wash may be directed to the City of Leoti waste water treatment plant or can be directed to the six earthen settling basins and subsequently to the irrigation holding ponds for recycle or irrigation. Irrigation water is drawn from the west irrigation cell. Five sites located north, east, and south of the ethanol plant are irrigated from the west irrigation cell. The facility also includes an East Irrigation Cell which is currently idle. The facility's design capacity is 1,000,000 bushels of seed grain per year. The source of water supply for ethanol production is groundwater from onsite water wells.

Process flow diagrams of the ethanol production process and a facility aerial photo/layout are included as Attachment 5.

Voluntary Cleanup

According to a KDHE Identified Sites List Information document found as part of the facility Kansas Water Pollution Control Permit I-UA26-NP0 (Attachment 8), ESE Alcohol, Inc. submitted an application to the KDHE Voluntary Cleanup and Property Redevelopment Program (VCPRP) in December 2002. Quarterly sampling of three groundwater monitoring wells at the facility indicated that chloride, sodium, and arsenic concentrations in the monitoring wells were above the background levels indicated at nearby wells. The monitoring indicates that domestic wells are not impacted by contaminants; however, the downgradient position of domestic wells is a cause for concern, and they should continue to be monitored.

In September 2003 three additional monitoring wells were installed at the site. Elevated levels of arsenic were identified during the Voluntary Cleanup Investigation (VCI). Based on this, KDHE determined that additional monitoring of the site was necessary.

KDHE requested additional monitoring wells at the site to better determine the extent of the contamination upgradient of the domestic water well and to determine if the contamination had migrated off site. Two additional monitoring wells were installed during 2005. Following review of groundwater monitoring results, KDHE recommended collecting unfiltered samples using a low-flow technique.

During 2006, ESE installed low-flow purging/sampling pumps. A water line was run from one of ESE's up-gradient supply wells to a potential receptor located immediately down-gradient of the ESE property.

During 2007, groundwater data was provided to the Kansas Geological Survey (KGS). KGS indicated it was possible that organic matter in the process water changed the oxidation state of water seeping through the lagoon and was mobilizing arsenic in the soil which, in turn, migrated to groundwater. During the Fall of 2007, KGS conducted a study which confirmed that mobilized arsenic was naturally present in the soil and aquifer sediments.

Early in 2008, groundwater samples were collected from an irrigation well and two private residences located a quarter mile east of ESE's property to delineate the extent of groundwater contamination and to provide assurance that human health wasn't threatened. Results indicated arsenic concentrations were below the Risk Based Standards for the State of Kansas in these wells. KDHE requested an additional downgradient monitoring well. An inoperable pump and piping were removed from an existing irrigation well in the area where the downgradient well was to be installed. A submersible pump was installed, and the irrigation well has been incorporated into the semi-annual groundwater monitoring events; therefore, installation of an additional downgradient monitoring well was not necessary. Semi-annual groundwater monitoring is ongoing at this time. See Attachment 9 for most recent groundwater analytical results.

ESE Alcohol is staffed by 10 full-time employees, and operates seven days each week, 24 hours each day.

According to the RCRAInfo database, ESE Alcohol has not notified as a generator of hazardous waste. As part of the opening conference documents e-mailed to ESE Alcohol, I provided Mr. Berning with a Hazardous Waste Site Info Verification Report for Inspector form (Attachment 6). Mr. Berning reviewed the form and made no changes. I determined ESE Alcohol to be a used oil generator. The facility non-generator status may change based upon the results of pending hazardous waste determinations.

4.2 Waste Streams and Waste Management

Information related to waste streams is listed in the Waste Stream Table (Attachment 7).

4.3 Areas Visually Inspected and Any Related Violations/Issues

4.3.1 Truck Wash Bay

Non-Compliance with Used Oil Marketing Requirements, 40 CFR 279 Subpart H (NOPF 1) – According to Mr. Carson, ESE generates approximately 70 gallons of used oil every six months. The used oil is generated as part of routine maintenance related to facility equipment gear boxes, vehicles, two compressors, and a forklift. At the time of the inspection, I observed a 70-gallon poly drum located in the truck wash bay containing approximately 10 gallons of used oil. The 70-gallon container was marked with the words “Used Oil”.

I asked Messrs. Carson and Berning how they disposed of their used oil. Mr. Carson stated that ESE self-transportes their used oil to CW Service & Repair, Inc., located in Leoti, Kansas. I asked Mr. Carson how much used oil is transported each time it is taken to CW Service & Repair. According to Mr. Carson, ESE self-transportes under 55-gallons of used oil. Mr. Carson stated that CW Service & Repair burns the used oil in a shop heater. I asked Messrs. Carson and Berning if ESE had their used oil sampled and analyzed to determine if it was on-specification. Messrs. Carson and Berning stated that the used oil had not been analyzed to determine if it was on-specification.

I also asked Mr. Carson if ESE retained records of when and how much oil was transported for the past three years. Mr. Carson stated that ESE did not maintain records of used oil shipments to CW Service & Repair. Prior to conducting the inspection, I checked the RCRAInfo database and was not able to find an EPA identification number associated with ESE Alcohol.

4.3.2 Facility-Wide

Waste Determination Not Conducted for Waste Fluorescent Lamps and Mercury Vapor Bulbs, 40 CFR 262.11 (NOPF Added After Inspection) – During the inspection I observed 4-foot and 8-foot fluorescent lamps and mercury vapor bulbs in use throughout the facility. I asked Messrs. Berning and Carson if ESE had conducted a waste determination for waste or spent fluorescent lamps and bulbs. Messrs. Carson and Berning stated that a waste determination had not been made for waste or spent fluorescent lamps and bulbs generated at the facility. At the time of the inspection, ESE did not have any spent lamps or bulbs accumulated or stored. Subsequent to the inspection, Mr. Carson provided me with Safety Data Sheets (SDSs) for lamps and bulbs used at the facility (Attachment 10). The 4-foot lamp and mercury vapor bulb SDSs provided a range for the amount of mercury and an incomplete unit of measure. The SDS provided to me by Mr Carson for the 8-foot lamps listed a range for the amount of mercury and percentage of weight of the lamp. Therefore, I informed Messrs. Carson and Berning that ESE Alcohol would need to make a waste determination for mercury containing lamps and bulbs when they become waste or are spent.

According to Messrs. Carson and Berning, ESE generates approximately two 4-foot lamps every two years; approximately five 8-foot lamps every four years; and approximately two 250-Watt Mercury Vapor Bulbs every eight years. Lamps and bulbs generated at the facility are disposed in the general trash.

According to Messrs. Berning and Carson, ESE Alcohol maintenance personnel change bulbs and lamps at the facility. However, ESE Alcohol's maintenance person was not available due to health issues. Therefore, I wasn't able to confirm the last time lamps had been disposed. General trash is self-transported by ESE alcohol personnel to the Wichita County Landfill.

An e-mail was sent to the facility on April 16, 2021, informing the facility of the additional citation (Attachment 14).

4.3.3 Reverse Osmosis System

Waste Determination Not Conducted for Reverse Osmosis Filters, 40 CFR 262.11 (NOPF Added After Inspection) –Because the facility has been involved in a KDHE Voluntary Cleanup Investigation (VCI) since 2002, I asked Messrs. Carson and Berning for groundwater monitoring sampling analytical results (Attachment 9). Elevated levels of chloride, sodium, and arsenic concentrations are monitored as part of the ongoing VCI. During review of groundwater monitoring sampling analytical results, I also noted that barium had been detected.

I asked Messrs. Carson and Berning what their water supply was for the facility. Mr. Carson stated that the facility's water supply was groundwater from an onsite well. According to Mr. Carson, groundwater run through the reverse osmosis system supplies water to the cooling tower and boiler. I asked Messrs. Carson and Berning if it was possible that elevated levels of contaminants, specifically arsenic, would be present in reverse osmosis filters generated at the facility. Messrs. Carson and Berning said they did not know if arsenic would be found in filters. I asked Messrs. Carson and Berning if a waste determination had been conducted for spent reverse osmosis filters. Mr. Carson stated a waste determination had not been conducted for spent reverse osmosis filters. Therefore, I informed Messrs. Carson and Berning that ESE Alcohol would need to make a waste determination for spent reverse osmosis filters when they become waste or are spent.

According to Messrs. Carson and Berning, ESE generates 10, 4-inch by 20-inch filters every three to four years. Spent reverse osmosis filters generated at the facility are disposed in the general trash. According to Mr. Carson, the facility replaced reverse osmosis filters approximately six years ago. General trash is self-transported by ESE alcohol personnel to the Wichita County Landfill.

An e-mail was sent to the facility on April 16, 2021, informing the facility of the additional citation (Attachment 14).

4.4 Additional Solid Waste Issues

Color Coat Dust

During inspection of the "grizzly" unloading pit/grate for grain, I observed a pink color on the ground (Photos 1-3). I asked Messrs. Carson and Berning what the colored material was. Messrs. Carson and Berning stated that the colored material was a colorant applied to seeds, by seed suppliers, to indicate that the seed was treated.

I asked Messrs. Carson and Berning what was in the colorant. Mr. Carson provided me with SDSs for Ex 4 Ex 4 determination (Attachment 11). ESE Alcohol has determined the colorant dust to be a non-hazardous waste, based upon process knowledge and use of SDSs.

I asked Messrs. Carson and Berning if there was a possibility for any of the pesticides, herbicides, or fungicides, used to treat seeds, to be mixed in with the colorant. Messrs. Carson and Berning stated that they did not know if any of the chemical used to treat seeds would be mixed in with the colorant. Mr. Carson provided me with SDSs for treated seeds received and used at the facility (Attachment 12). ESE Alcohol has used treated seed SDSs to make hazardous waste determinations for multiple waste streams (See Waste Stream Table, Attachment 7). ESE Alcohol has determined the treated seed to be a non-hazardous waste, based upon process knowledge and use of SDSs.

I informed Messrs. Carson and Berning that although ESE Alcohol may have determined the color coating and treated seeds to be non-hazardous when spent, the State of Kansas does have regulations governing management of non-hazardous solid waste.

According to Messrs. Carson and Berning, the colorant has never been cleaned up from around the “grizzly” unloading pit/grate. I asked Mr. Carson if he could estimate how much of the colorant was currently on the ground and how much has been allowed to remain on the ground as part of receiving the colored, treated seed. Mr. Carson stated that he did not know and that he would need to attempt to calculate that number.

Fire Resistant Insulation

During inspection of the boiler room, I observed an out of commission boiler (Photo 4). According to Mr. Carson, the facility had recently installed a new boiler. I asked Mr. Carson if ESE Alcohol would be dismantling and disposing of the old boiler. Mr. Carson stated that ESE Alcohol has been able to scavenge and use parts from the old boiler, and therefore hadn’t planned on removing the old boiler.

Underneath the boiler, I noticed a waste-like, brown, chunky material (Photos 4 and 5). I asked Mr. Carson what the material under the boiler was. Mr. Carson stated that the material was a fire-resistant insulation. I asked Mr. Carson if he knew whether ESE might continue to use the material. Mr. Carson wasn’t sure if ESE Alcohol would continue to use the material. I asked Mr. Carson if the material contained asbestos. Mr. Carson stated that he didn’t know if the material contained asbestos. I reminded Mr. Carson that if ESE decides to dispose of the fire-resistant material, that a hazardous waste determination would need to be conducted, in addition to determining if the material contains asbestos.

Mash/Biosolids, Lagoon Cleanout, and Process Water

ESE uses all the seed/grain received at the facility to manufacture ethanol. According to Messrs. Berning and Carson, ESE receives approximately 98 percent corn and two percent milo for use in making ethanol. Grain is received in bulk form and is unloaded into the “grizzly” pit from hopper trailers (see Attachment 5 for an aerial photo/facility layout). The grain is then augered/conveyed up into a storage silo.

From the silo, grain is automatically fed into the grinder and cooker process.

After use in making ethanol, ESE Alcohol refers to ground corn and milo as mash/biosolids. When removed from the fermentation process, mash is dewatered through a centrifuge and then accumulated in the centrifuge and mash/biosolids building (Attachment 5). Centrifuge water is directed to one of several unlined lagoon settling basins.

Mash is then transported to a location approximately two miles north of the facility and formed into windrows. According to Mr. Berning, after being formed into windrows, the mash is allowed to decompose prior to being land applied as a soil amendment/fertilizer. ESE has been authorized to land apply mash/biosolids, lagoon cleanout (clay and mash/biosolids), and process water according to Kansas Water Pollution Control Permit I-UA26-NP0 (Attachment 8). See the waste stream table, Attachment 7, for all types of process water directed to lagoon settling basins. According to Mr. Carson, windrows of mash and lagoon cleanout are land applied in June or July, and again in October or November. Messrs. Berning and Carson stated that approximately 19,000 acres, owned or leased by the Berning family, are used for land application of mash, lagoon cleanout, and process water. See Attachment 15 for the amount of solids land applied since 1998.

Subsequent to the inspection, I contacted Shelly Shores-Miller and Eric Staab, KDHE Bureau of Water, to discuss regulations applicable to liquids and solids applied to the land. Ms. Shores-Miller is listed as the contact for Kansas Water Pollution Control Permit I-UA26-NP0 (Attachment 8); Mr. Staab drafted the permit. During separate conversations, I asked both Ms. Shores-Miller and Mr. Staab if they knew whether other media regulations, such as RCRA, would be applicable to the land applied liquids and solids listed in the permit. To their knowledge, Ms. Shores-Miller and Mr. Staab were not aware of any part of permit I-UA26-NP0 that would make the liquids and solids applied to the land exempt from RCRA.

According to ESE Alcohol, through use of SDSs, they do not receive or use treated seed/grain containing pesticides or herbicides listed on the toxicity characteristic leaching procedure (TCLP) list (Attachment 12).

A 2014 sampling event was conducted for windrow mash/biosolids, centrifuge building mash/biosolids, centrifuge liquid, and lagoon settling basin water. The purpose of the sampling event was to determine the presence of treated seed/grain in the solid and liquid material removed from the ethanol manufacturing process. According to Mr. Bobo, total waste analyses was performed for windrow mash/biosolids, centrifuge building mash/biosolids, centrifuge liquid, and lagoon settling basin water. The 2014 analytical results are included as Attachment 13.

I conducted a cursory internet search for seed/grain product SDSs listed as part of the 2014 analytical data. One product listed as part of the 2014 sampling event is the fungicide Thiram. According to a 1987 EPA Integrated Risk Information System (IRIS), Chemical Assessment Summary, Thiram is associated with listed waste code U244.

EPA may want to investigate further if some treated grain received at ESE Alcohol might be considered listed waste, since it appears that solids and liquids applied to the land are subject to RCRA regulations, e.g. 40 CFR 261.2 and or 266.20.

As part of the inspection, Mr. Heafner and I sampled material from four windrows at the location north of the facility. Three of the windrows were comprised of mash/biosolids and one windrow was comprised of lagoon cleanout (Photos 6-10). Other sampling conducted by Mr. Heafner included, but was not limited to, waste process water from lagoon settling basins, soil from a field adjacent to the windrows, and surface water south and east of Leoti, Kansas. In part, the purpose of the sampling event was to determine the presence of neonicotinoids in sampled solids and liquids. Neonicotinoids are a class of neuro-active insecticides chemically similar to nicotine.

It should be noted that an internet search of several seed/grain treatment product names, listed as part of the 2014 sampling event (Attachment 13), contain neonicotinoids.

5.0 SUMMARY

I inspected ESE Alcohol as a a non-generator of hazardous waste and used oil generator.

However, the facility generator status may change based upon the results of pending hazardous waste determinations. Hazardous waste requirements reviewed during this inspection are discussed above and are noted on the KDHE hazardous waste Generator Compliance Inspection Report checklist included as Attachment 1.

The following preliminary findings/issues were noted as discussed above:

1. Non-Compliance with Used Oil Marketing Requirements, 40 CFR 279 Subpart H (NOPF 1)
2. NOPF (Added After Inspection) – Inadequate Waste Determination, 40 CFR 262.11, for the following waste streams:
 - a. 4-foot and 8-foot fluorescent lamps and mercury vapor bulbs
 - b. Reverse osmosis filters

Other than the items noted above, no other apparent preliminary findings were observed or cited. However, EPA post-inspection review of this report may change or add to my findings.

TIMOTHY EVANS
Digitally signed by TIMOTHY EVANS
Date: 2021.05.18 13:48:10 -05'00'

Timothy R. Evans
Life Scientist

AMBER WHISNANT
Digitally signed by AMBER WHISNANT
Date: 2021.05.18 14:51:34 -05'00'

Amber Whisnant
Section Chief
ECAD/CB/RCRA, EPA Region 7

Attachments

1. Hazardous Waste Generator Compliance Inspection Report Checklist (2 pages)
2. Confidentiality Notice (1 page) (CBI)
3. Document of Receipt (1 page) (CBI)
4. NOPF (1 page)
5. Process Flow Diagram and Facility Aerial Photo/Layout (3 pages)
6. Hazardous Waste Site Info Verification Report for Inspector (1 page)
7. Waste Stream Table (4 pages)
8. Kansas Water Pollution Control Permit I-UA26-NP0 (33 pages)
9. Groundwater Monitoring Analytical Results (5 pages)
10. 4-Foot and 8-Foot Fluorescent Lamps and Mercury Vapor Bulb SDSs (20 pages)
11. Ex 4 and Ex 4 SDSs (20 pages)
12. Treated Seed/Grain SDSs (161 pages)
13. 2014 Process Wash Water and Mash/Biosolids Analytical Results (4 pages)
14. E-Mail to Facility - Additional Citations (2 pages)
15. Annual Amounts of Land Applied Solids (1 page)

Photo Log (1 page)

Photos (5 pages/10 photos)

HAZARDOUS WASTE GENERATOR COMPLIANCE INSPECTION REPORT

GENERAL REQUIREMENTS (GGR)

YES NO NAV#

- | | |
|--|--|
| <p>1. Has the generator evaluated each potentially hazardous waste to determine if it is hazardous? 40 CFR 262.11</p> <p style="margin-left: 20px;">a. If waste was tested, was the analysis conducted by a laboratory certified by KDHE? KAR 28-31-262(c)(2)</p> <p style="margin-left: 20px;">b. If waste was not tested, did the generator use knowledge of the hazardous characteristics of the waste in light of the materials or processes used? 40 CFR 262.11(c)(2)</p> <p style="margin-left: 20px;">c. Is documentation of the waste determination kept for three years from the date the waste was last sent to on-site or off-site treatment, storage or disposal? 40 CFR 262.40(c)</p> | <div style="display: flex; justify-content: space-around;"> <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> NAV# </div> <div style="color: red; font-size: small; margin-top: 5px;">Added After Inspection</div> <div style="display: flex; justify-content: space-around;"> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> </div> |
| <p>2. If hazardous waste is disposed of via the sanitary sewer to a Publicly Owned Treatment Works (POTW), has the generator received written approval from the City - POTW?</p> | <div style="display: flex; justify-content: space-around;"> <input type="checkbox"/> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> NAV# </div> |
| <p>3. Has the facility obtained a Special Waste Disposal Authorization (SWDA) for each special waste? KAR 28-29-109(c)</p> | <div style="display: flex; justify-content: space-around;"> <input type="checkbox"/> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> NAV# </div> |
| <p>4. If the generator treats or recycles hazardous waste on-site (such as in a still), do they count waste correctly? 40 CFR 261.5(d)(2)</p> <p style="margin-left: 20px;">a. If the waste is not counted, is it exempt because of a closed-loop system?</p> | <div style="display: flex; justify-content: space-around;"> <input type="checkbox"/> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> NAV# </div> <div style="display: flex; justify-content: space-around; margin-top: 5px;"> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> </div> |
| <p>5. Has the KSQG, SQG, or LQG notified KDHE and obtained an EPA Identification Number? 40 CFR 262.12(a) (Mark NA only for CESQG)</p> | <div style="display: flex; justify-content: space-around;"> <input type="checkbox"/> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> NAV# </div> |
| <p>6. Is current notification accurate? (Updates must be made within 60 days of the change) KAR 28-31-4</p> | <div style="display: flex; justify-content: space-around;"> <input type="checkbox"/> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> NAV# </div> |

UNIVERSAL WASTE

- | | |
|--|---|
| <p>7. Does the facility choose to manage some of its waste as universal waste? If no, skip this section. If yes, check each type of universal waste that applies:</p> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <div style="width: 45%;"> <input type="checkbox"/> batteries
 <input type="checkbox"/> pesticides </div> <div style="width: 45%;"> <input type="checkbox"/> mercury-containing equipment
 <input type="checkbox"/> lamps </div> </div> | <div style="display: flex; justify-content: space-around;"> <input type="checkbox"/> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> NAV# </div> |
| <p>8. Is the facility a small quantity handler of universal waste (accumulates <11,000 lbs or <5,000 kgs)? If the facility is a large quantity handler of universal waste, explain under "additional information" and skip the remaining questions in this section. These questions are designed only for small quantity handlers of universal waste.</p> | <div style="display: flex; justify-content: space-around;"> <input type="checkbox"/> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> NAV# </div> |
| <p>9. If the facility manages mercury-containing equipment, do they remove mercury-containing ampules from equipment?</p> <p style="margin-left: 20px;">If yes, are the requirements of 40 CFR 273.13(c)(2) met? (These include using secondary containment during the removal, having a mercury spill kit available, training employees, and other requirements.) 40 CFR 273.13(c)(2)</p> | <div style="display: flex; justify-content: space-around;"> <input type="checkbox"/> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> NAV# </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> </div> |

YES NO NA V#

10. Are all universal wastes managed in closed containers that are structurally sound, adequate to prevent breakage, compatible with the contents of the container, lack evidence of leakage, spillage, or damage that could cause leakage under reasonably foreseeable conditions?
- a. Batteries (only damaged or leaking batteries must be contained) **40 CFR 273.13(a)(1)** ☐ ☐ ☒
- b. Pesticides **40 CFR 273.13(b)(1)** ☐ ☐ ☒
- c. Mercury-containing equipment **40 CFR 273.13(c)(1)** ☐ ☐ ☒
- d. Lamps **40 CFR 273.13(d)(1)** ☐ ☐ ☒
11. Is each container (or unit if not containerized) marked appropriately with one of the following phrases (substitute the appropriate universal waste for the blank)?:
"Universal Waste-_____", or "Waste _____" or "Used _____"?
- a. Batteries (only damaged or leaking batteries must be contained) **40 CFR 273.14(a)** ☐ ☐ ☒
- b. Pesticides **40 CFR 273.14(c)** Note: cannot use the words "Used Pesticides"
1. Is the original pesticide label or other approved label, also present? ☐ ☐ ☒
- c. Mercury-containing equipment (the word "thermostat" can be substituted for the words "containing equipment") **40 CFR 273.14(d)** ☐ ☐ ☒
- d. Lamps **40 CFR 273.14(e)** ☐ ☐ ☒
12. Can the accumulation time (date became a waste or from receipt date) be demonstrated by date on container, date in accumulation area, date on individual waste items, inventory system, or other method? **40 CFR 273.15(c)** ☐ ☐ ☒
13. Have employees been trained on proper management of universal waste? **40 CFR 273.16** ☐ ☐ ☒
14. Has there been a release of universal waste at this facility?
If yes, was it cleaned up and a proper waste determination made on the cleaned up material? **40 CFR 273.17(b)** ☐ ☐ ☒
15. Is universal waste sent to another universal waste handler or a destination facility?
40 CFR 273.18(a) ☐ ☐ ☒
- a. Has a shipment sent by this handler ever been rejected? (if yes, explain in additional information section.) ☐ ☐ ☒
- b. Has a shipment been sent to a foreign destination? (if yes, explain in additional information section.) ☐ ☐ ☒

Note: Small quantity handlers are not required to keep records of shipments of universal waste.

GENERATOR REQUIREMENTS

YES NO NAV#

16. Is the CESQG recycling, treating, or disposing of hazardous waste on-site in an acceptable manner? **40 CFR 261.5(g)** ☐ ☐ ☒
- If yes, describe _____
(If described on the waste stream table, don't repeat here.)
17. If the CESQG is accumulating less than 55 lbs (25 kgs) of hazardous waste on-site, is the CESQG sending this waste off-site for treatment, storage, or disposal according to? **40 CFR 261.5(g)** ☐ ☐ ☒
- If yes, describe _____
(If described on the waste stream table, don't repeat here.)

Waste Determination Pending

Notice of Preliminary Findings

Media: RCRA

Facility Name: ESE ALCOHOL, INC.
Facility Address: 310 EAST HWY 96, PO BOX 848
LEOTI, KANSAS 67861
EPA ID#: NONE Date: 3-15-16-21

This notice is provided to call your attention to the following preliminary findings regarding state and federal regulations. This notice does not constitute a compliance order and may not be a complete listing of all findings resulting from the inspection.

Citation

Description of Finding

1, 40 CFR 279, SUBPART H	a. CONDUCTING ANALYTICAL TESTING TO DETERMINE USED OIL TO BE ON-SPEC (NOT CONDUCTED)
	b. FACILITY HAS NOT OBTAINED EPA ID NUMBER
	c. RECORDS OF USED OIL SHIPMENTS NOT MAINTAINED IN FILES FOR THREE YEARS

As a continuation of the inspection performed at your facility, you are asked to submit a written response within 14 calendar days of receipt of this notice. Your response should include a description of all corrective actions taken and/or a schedule for completing the necessary corrective actions. The response should be submitted to:

U.S. Environmental Protection Agency
Region 7, Enforcement & Compliance Assurance Division (ECAD)
11201 Renner Boulevard, Lenexa, KS 66219
ATTN: TIMOTHY EVANS

If you have any questions about this Notice or wish to discuss your response, you may call me at (913) 551-7663, or EDWIN BUCKNER (Compliance Officer) at (913) 551-7621.

This Notice prepared by Timothy R. Evans Date: 3-16-21

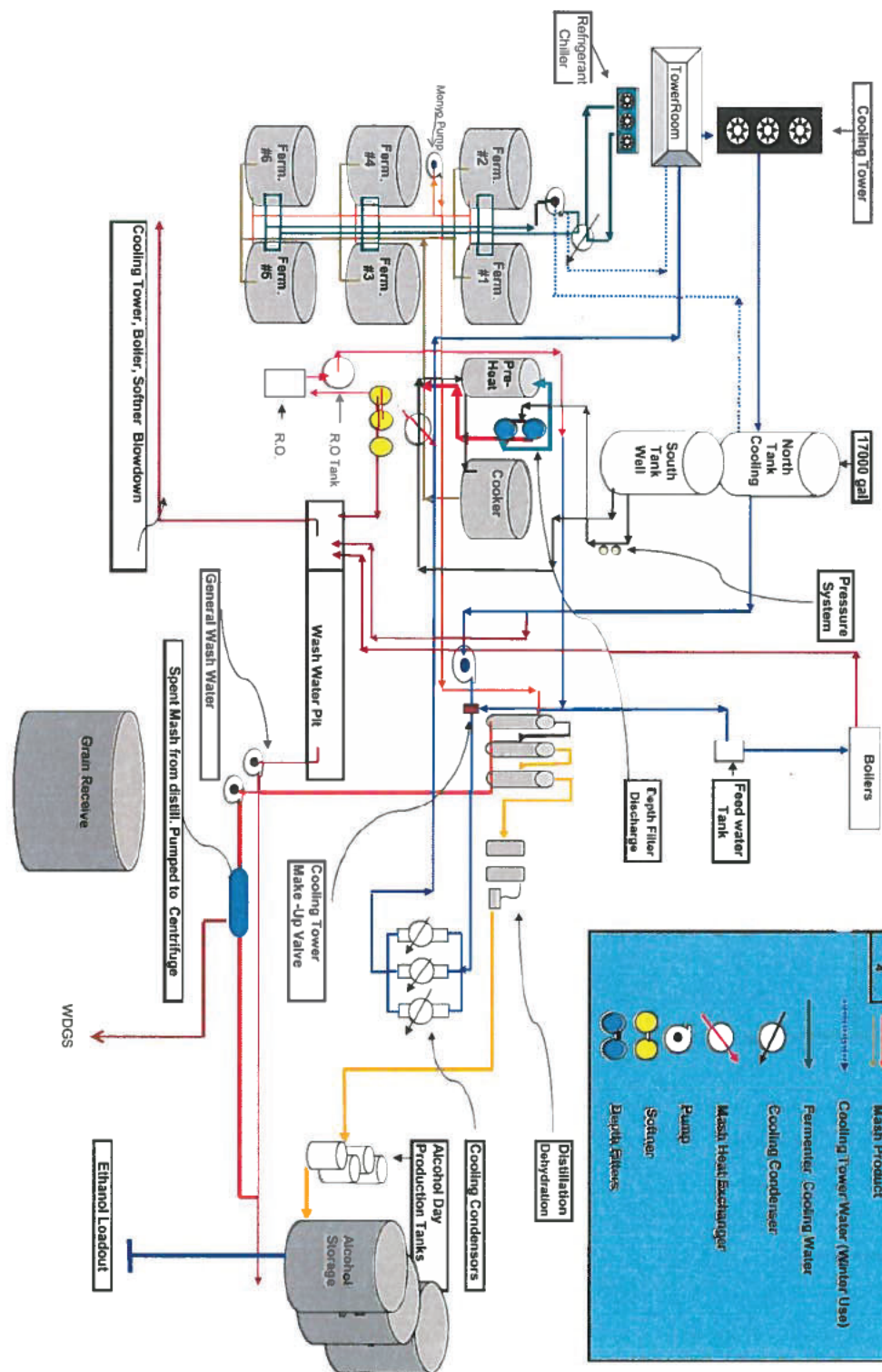
The undersigned person hereby acknowledges that he/she has received a copy of this Notice and has read same.

Printed Name: DUNN P. EVANS
Signature: [Signature]
Title: PRESIDENT
Date: 03-16-2021



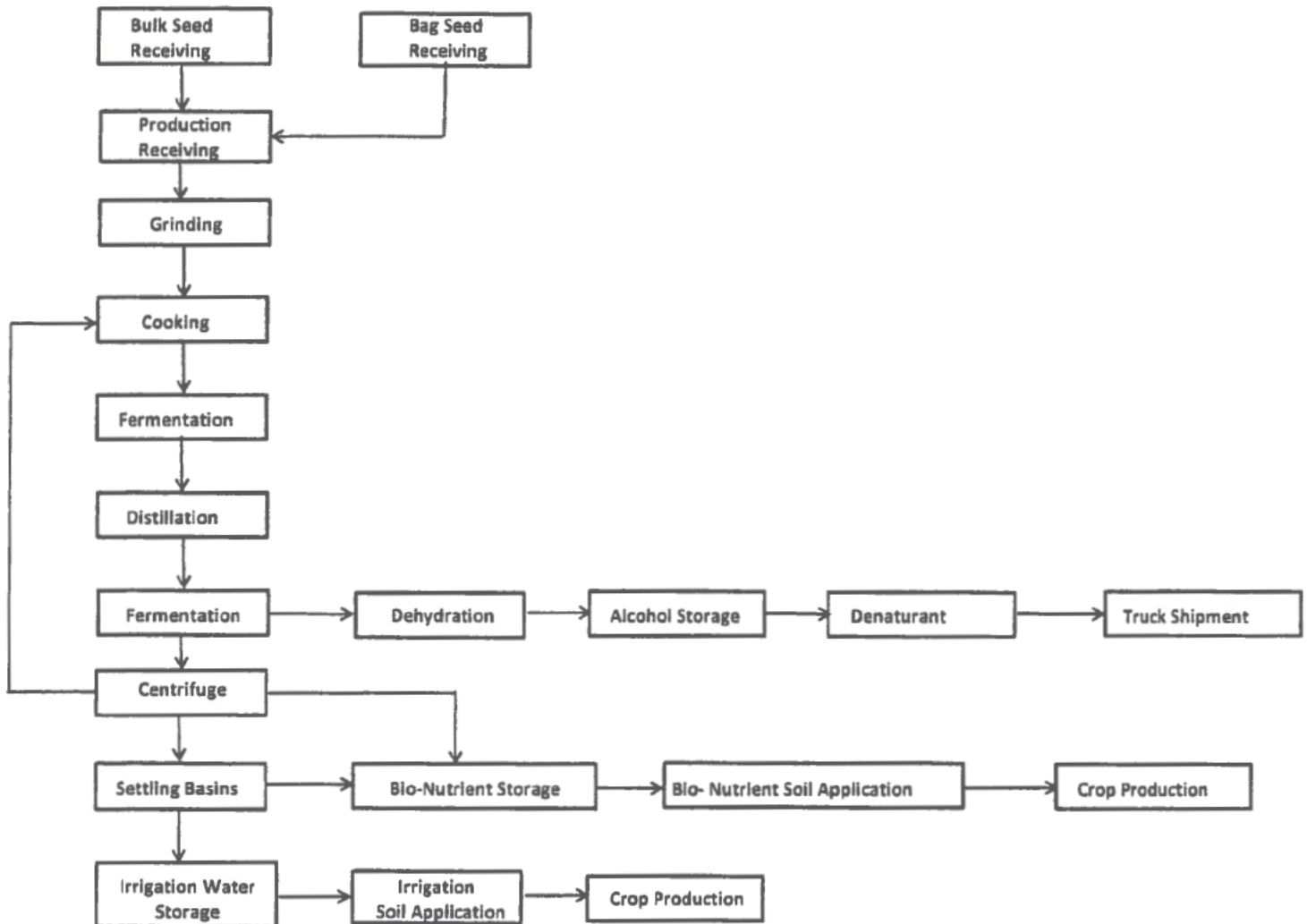
ESE Plant/Office

Flow Chart





ESE Alcohol, Inc. Flow Chart



Hazardous Waste Site Info Verification Report for Inspector

March 8, 2021

PROCEDURES for Inspectors/Investigators performing Site Visits: If during the course of the site visit, the inspector/investigator becomes aware of any changes which should be made to the information printed on this form, please make the corrections and return the form to ECAD/CB/RCRA. If a facility wants to change their information, they must fill out a RCRA Subtitle C Site Identification Form (or equivalent State form) and mail it to the appropriate State. Iowa forms should be mailed to EPA Region 7. Iowa and Nebraska facilities may also submit their updates online by registering for the RCRAInfo Industry App - myRCRAid at <https://rcrainfo.epa.gov/rcrainfoprod/>

EPA RCRA ID Number: NOT YET ASSIGNED

Name of Company/Site: ESE ALCOHOL INC

Location of Site: 310 KS-96
LEOTI, KS 67861
WICHITA, COUNTY

Land Type: PRIVATE

NAICS:

Mailing Address:

Site Contact: DUANE BERNING

Job Title: PRESIDENT
Address:

Phone Number: 620-375-4904
Email: dberning@esealcohol.com

Current Owner of Site:
Address:

Phone Number:
Owner Type:

Current Operator of Site:
Address:

Phone Number:
Operator Type:

TYPE(S) OF REGULATED ACTIVITY: Used Oil Generator, Used Oil Marketer, Used Oil Transporter

Hazardous Wastes Handled: None; Pending Waste Determinations

Date of Site Visit: March 15 and 16, 2021

Name of Inspector (Please print): Timothy R. Evans

(Check one): ☒]EPA R7 ECAD []EPA R7 Contractor []NOWCC/SEE Investigator

Signature of Inspector/Investigator: _____

WASTE STREAM TABLE

(List all hazardous wastes first, followed by solid wastes.)

Waste Description or Process	Waste Type	Generation Freq.	If HW, list all codes	Waste Det. Method	Waste Amount Generated Per Month		Waste Amount Presently in Storage	Oldest Accumulation Start Date	Present Waste Disposal Location (list name of destination facility and if not clear, put type of facility (MSWLF, TSDF, WWTF, etc.))	Att. #
					Amount	Units				
4-Foot Fluorescent Lamps	ND	NR	ND	ND	~2 every 2 Years	Lamps	None	NA	Self-Transported by ESE Alcohol, Inc.; Disposed at Wichita County Landfill	10, 14
8-Foot Fluorescent Lamps	ND	NR	ND	ND	~5 every 4 Years	Lamps	None	NA	Self-Transported by ESE Alcohol, Inc.; Disposed at Wichita County Landfill	10, 14
250-Watt Mercury Vapor Bulbs	ND	NR	ND	ND	~2 Every 8 Years	Lamps	None	NA	Self-Transported by ESE Alcohol, Inc.; Disposed at Wichita County Landfill	10, 14
Reverse Osmosis Filters	ND	NR	ND	ND	10 Every 3-4 Years	4"x20" Filters	Last Changed in 2014	NA; None	Self-Transported by ESE Alcohol, Inc.; Disposed at Wichita County Landfill	14
Lead Acid Batteries – Facility Vehicles, Forklift	EX	NR	NA	PK	~2 Every 5 Years	Batteries	None	NA	Exchanged at Carquest Located in Leoti, KS; Recycled as Allowed Under 266.80(a)(2) and (3)	
Used Oil - Company Vehicles, Facility Equipment Gear Boxes, Forklift, Compressors	UO	R	NA	ND for On-Specific-ation	~70 Every Six Months	Gal.	~10 Gallons	NA	Self-Transported by ESE Alcohol, Inc.; Provided to CW Truck Repair; Burned in a Shop Heater at CW Truck Repair	
Used Oil Filters – Company Vehicles, Forklift, Compressors	SW	R	NA	PK	~10 Annually	Filters	None	NA	Hot Drained; Self-Transported by ESE Alcohol, Inc.; Disposed at Wichita County Landfill	
Waste Urea – Used as a Nutrient Supplement for Yeast; Generated in Wash Bay	SW	NR; One Time (OT)	NA	PK; Nutrien SDS	~3 Annually	Lbs.	~1 Quart in Trash Can	Not Determined at Time of Inspection	Self-Transported by ESE Alcohol, Inc.; Disposed at Wichita County Landfill	

WASTE STREAM TABLE

Waste Description or Process	Waste Type	Generation Freq.	If HW, list all codes	Waste Det. Method	Waste Amount Generated Per Month		Waste Amount Presently in Storage	Oldest Accumulation Start Date	Present Waste Disposal Location (list name of destination facility and if not clear, put type of facility (MSWLF, TSDF, WWTF, etc.))	Att. #
					Amount	Units				
Depth Filter (Sand Column/Bed) Backwash Water	SW	R	NA	Ground Water Monitoring AD	~700 Each Day	Gal.	None	NA	Goes into Onsite Washing Pit; Stored in On-Site Lagoons; Allowed to Evaporate and/or Land Applied According to KDHE Issued Kansas Water Pollution Control Permit I-UA26-NP01	
Water Softener Reject (Sodium/Brine Water)	SW	R	NA	PK	Not Determined at Time of Inspection	Gal.	None	NA	City of Leoti POTW	
Spilled Grain at "Grizzly" Unloading Pit/Grate for Grain	SW	R	NA	PK; Seed Grain and Color Coat Red SDSs	~150 Every Six Months	Pounds (Lbs.)	~40 Lbs.	Not Determined at Time of Inspection	Added to Mash/Biosolids Load Out Building; Land Applied on Property North of Facility	11, 12
Ex 4 -Contaminated Gravel and Soil (Colorant on and from Grain Received at Facility – Generated next to "Grizzly" Unloading Pit/Grate)	SW	R	NA	PK; Seed Grain and Color Coat Red SDSs	ND	Lbs.	Not Determined at Time of Inspection	NA	Allowed to Remain on Ground around Load-In Grate; Not Removed from Load In Area	11, 12
Dirt and Used Oil-Contaminated Cloth Rags	SW	R	NA	PK	2 Every Two Weeks	5-Gallon Step Cans	2, Full, 5-Gallon Step Cans	NA; Not Determined at Time of Inspection	Western Uniform and Towel Service Picks up Cloth Rags; Rags are Laundered at Garden City, KS Western Uniform Facility	
Ethanol Samples – Generated in Distillation Room	SW	R	NA	PK	~180	Gal.	None; NA	NA	Samples are Put Back into Distillation System After Analysis/ Measurement	

WASTE STREAM TABLE

Waste Description or Process	Waste Type	Generation Freq.	If HW, list all codes	Waste Det. Method	Waste Amount Generated Per Month		Waste Amount Presently in Storage	Oldest Accumulation Start Date	Present Waste Disposal Location (list name of destination facility and if not clear, put type of facility (MSWLF, TSDF, WWTF, etc.))	Att. #
					Amount	Units				
Water Softener Samples – Hardness Buffer, Hardness Reagent, and Hardness Indicator Powder (One Drop of Each Goes into a 25 mL Sample)	SW	R	NA	PK; SDS	780 Annually	mL	None; NA	NA	Goes into Onsite Washing Pit; Stored in On-Site Lagoons; Allowed to Evaporate and/or Land Applied According to KDHE Issued Kansas Water Pollution Control Permit I-UA26-NP01	
Mash/Biosolids and Settling Basin/Lagoon Solids (Clay Mixed with Mash/Biosolids)	SW	R	NA	2014 AD; PK - Seed Grain and Color Coat Red SDSs	~20 Every 14 Hours	Tons	Three ~200' L x 5" H Mash Biosolids and One Settling Basin/Lagoon Solids Windrows	~3 Months	Hauled to and Land Applied on Property North of Facility According to KDHE Issued Kansas Water Pollution Control Permit I-UA26-NP01	11, 12, 13
Centrifuge Liquid	SW	R	NA	2014 AD; PK - Seed Grain and Color Coat Red SDSs	Not Determined at Time of Inspection	Gal.	Not Determined at Time of Inspection	Not Determined at Time of Inspection	Goes into On-Site Lagoons; Allowed to Evaporate and/or Land Applied According to KDHE Issued Kansas Water Pollution Control Permit I-UA26-NP01	11, 12, 13
Process Wash Water	SW	R	NA	2014 AD; PK - Seed Grain and Color Coat Red SDSs	~8 Million	Gal.	Not Determined at Time of Inspection	Not Determined at Time of Inspection	Goes into Onsite Washing Pit; Stored in On-Site Lagoons; Allowed to Evaporate and/or Land Applied According to KDHE Issued Kansas Water Pollution Control Permit I-UA26-NP01	11, 12, 13
Cooling Tower Blowdown – Steam/Water and Liquid Sodium Hydroxide	SW	R	NA	PK; H ² Global Solutions Boiler Power 640 SDS	Not Determined at Time of Inspection	Gal.	Not Determined at Time of Inspection	Not Determined at Time of Inspection	City of Leoti POTW; or Stored in On-Site Lagoons; Allowed to Evaporate and/or Land Applied According to KDHE Issued Kansas Water Pollution Control Permit I-UA26-NP01	

WASTE STREAM TABLE

Waste Description or Process	Waste Type	Generation Freq.	If HW, list all codes	Waste Det. Method	Waste Amount Generated Per Month		Waste Amount Presently in Storage	Oldest Accumulation Start Date	Present Waste Disposal Location (list name of destination facility and if not clear, put type of facility (MSWLF, TSDF, WWTF, etc.))	Att. #
					Amount	Units				
Boiler Blowdown – Steam/Water and Liquid Sodium Hydroxide	SW	R	NA	PK; H ² Global Solutions Boiler Power 640 SDS	50 Daily	Gal	Not Determined at Time of Inspection	Not Determined at Time of Inspection	Goes into Onsite Washing Pit; Stored in On-Site Lagoons; Allowed to Evaporate and/or Land Applied According to KDHE Issued Kansas Water Pollution Control Permit I-UA26-NP01	
Truck Wash Bay Wastewater (Hotsy Brand Carwash Soap and Water Generated from Washing Seed/Grain Residual Out of Hopper/Trailers)	SW	R	NA	PK; Soap, Seed Grain, and Color Coat Red SDSs	~3,000	Gal.	Not Determined at Time of Inspection	Not Determined at Time of Inspection	Goes into Onsite Washing Pit; Stored in On-Site Lagoons; Allowed to Evaporate and/or Land Applied According to KDHE Issued Kansas Water Pollution Control Permit I-UA26-NP01	11, 12, 13
Empty Product Containers, e.g. 55-Gallon Plastic Caustic Soda Drums; Hardness Buffer, Hardness Reagent, and Hardness Indicator Containers; 1-Gallon Descaling Chemical Containers	SW	R	NA	PK	~3 Every Year	Small Container	Not Determined at Time of Inspection	NA	55-Gallon Drums Returned to Vendor; Smaller Containers Disposed in General Trash; Self-Transported by ESE Alcohol, Inc.; Disposed at Wichita County Landfill	
Scrap Metal – Steel, Stainless Steel	SW	R	NA	PK	~400 Every Six Months	Lbs.	~200 Lbs.	NA	TLT Metals, LLC, Located in Leoti, KS Picks Up and Recycles Metal	
General Trash – Office Trash, Paper Waste, Break Room Waste	SW	R	NA	PK; SDS	55	Gal.	Not Determined at Time of Inspection	NA	Self-Transported by ESE Alcohol, Inc.; Disposed at Wichita County Landfill	

Waste Types

HW = Hazardous Waste
 SW = Solid Waste
 UW = Universal Waste
 UO = Used Oil
 EX = Exempt
 ND = Not Determined

Generation Frequency

R = Routine
 NR = Non-routine, episodic, occasional
 OT = One-time

Waste Determination Methods:

PK = Process Knowledge
 AD = Analytical Data
 ND = Not Determined

Last Column: Attachment # if attaching documents pertinent to this waste stream

Bureau of Water
1000 SW Jackson St., Suite 420
Topeka, KS 66612-1367



Phone: 785-296-5504
Fax: 785-559-4257
Jaime.Gaggero@ks.gov
www.kdhe.ks.gov

Susan Mosier, MD, Secretary

Department of Health & Environment

Sam Brownback, Governor

December 15, 2017

ESE Alcohol, Inc
Environmental Manager
PO Box 848
Leoti, KS 67861

RE: Kansas Water Pollution Control
Permit No. I-UA26-NP01
ESE Alcohol, Inc.

Dear Permittee:

You have fulfilled all the filing requirements for a Kansas Water Pollution Control Permit. We are pleased to forward your new permit. While it is permissible to make as many copies as needed for monitoring and reporting purposes, you need to retain the original permit for your files.

We suggest you carefully read the terms and conditions of your permit and understand these terms and conditions are enforceable under State law.

We look forward to working with you in the achievement and maintenance of high quality water for the State of Kansas. If you have any questions concerning this permit, please contact Shelly Shores-Miller at (785) 296-2856.

Sincerely,

Jaime Gaggero
Director, Bureau of Water

pc: SW - District Office
ES- Permit File

KANSAS AGRICULTURAL WATER POLLUTION CONTROL PERMIT

Pursuant to the Provisions of Kansas Statutes Annotated 65-164 and 65-165,

Owner: ESE Alcohol, Inc.
Owner's Address: P.O. Box 848
Leoti, Kansas 67861-0848
Facility Name: ESE Alcohol, Inc.
Facility Location: 310 East Highway 96
Leoti, Kansas 67861
(1½ mile east of Leoti on K-96)
Legal Description: SW¼ of Section 17, Township 18 S, Range 36 W, Wichita County,
Kansas Latitude: 38.4847 Longitude: -101.3289

is authorized to operate the facility described herein in accordance with the attached applicable conditions of "Standard Conditions for Non-Overflowing Wastewater Treatment Facilities", dated May 1, 1996 and the Monitoring and Supplemental Conditions listed below. Discharge of waste water from this facility to surface waters of the State of Kansas is prohibited by this permit.

This permit is effective January 1, 2018, supersedes previously issued Kansas Water Pollution Control Permit No. I-UA26-NP01 and expires November 30, 2021.

FACILITY DESCRIPTION:

This facility ferments treated seed grain to produce denatured ethanol for fuel use. Mash solids, facility wash water, trailer wash water, boiler blowdown and water softener regenerate are directed to one of six earthen settling basins. Each of the six basins goes through a fill/settling/decanting/drying/solids removal cycle. After the mash solids have settled, mash water is decanted into the west irrigation cell (formerly the cooling water holding pond) for irrigation storage. Solids are periodically removed from the settling basins and either directly applied to farm land for agricultural benefits or stored at a central stockpile location prior to land application. A centrifuge is used for mash dewatering with the centrate discharged to one of the six mash water settling basins and the separated solids stored at a central stockpile location prior to land application.

Cooling tower blowdown, boiler blowdown, water softener reject and waste recharge flows, reverse osmosis concentrate and cleaning flows, facility wash down and seed trailer wash may be directed to the City of Leoti waste water treatment plant or can be directed to the six earthen settling basins and subsequently to the irrigation holding ponds for recycle or irrigation. Irrigation water is drawn from the west irrigation cell. Five sites located north, east and south of the ethanol plant are irrigated from the west irrigation cell. The facility's design capacity is 1,000,000 bushels of seed grain per year. Source of water supply is groundwater from onsite water wells.

The facility also includes an East Irrigation Cell which is currently idle. See Permit Supplemental Condition No. 10 for re-activation requirements.



Secretary, Kansas Department of Health and Environment

December 14, 2017
Date

A. MONITORING REQUIREMENTS

1. Groundwater Monitoring:

Groundwater monitoring wells identified below shall be monitored semi-annually in March and September. Monitoring reports shall be submitted by the 28th day of April and October. Monitoring wells will be sampled in accordance with approved procedures to insure the samples are representative of the aquifer quality. The water level in each monitoring well shall be measured and recorded prior to sampling. The groundwater samples shall be analyzed for the parameters listed below:

Groundwater Monitoring Wells:

	<u>Well No.</u>	<u>Longitude</u>	<u>Latitude</u>	<u>Location</u>
a.	GMW1	N 1986756.17,	E 502124.67;	northwest of settling basin No. 1
b.	GMW2	N 1985842.59,	E 502939.32;	southeast of mash water pond
c.	GMW3	N 1986589.58,	E 503231.27;	east of settling basin No. 6
d.	GMW4	N 1986566.95,	E 504454.65;	east of the settling basins
e.	GMW5	N 1986374.07,	E 503231.27;	southeast of settling basin No. 6
f.	GMW7	N 1985457.47,	E 504392.71;	southeast corner of property
g.	GWM8	N 1985970.97,	E 504435.26;	center east side of property
h.	WW1	N 1985610.87,	E 502499.69;	southwest of the ethanol plant; aka ESE Domestic Well or W3
i.	WW2	N 1985312.11,	E 502959.11;	southeast of the ethanol plant; aka the ESE East Well or W1
j.	WW3	N 1985428.72,	E 504511.02;	east of the ethanol plant; aka the Jim Green Domestic Well

<u>Parameter</u>	<u>Quantitative Level*</u>
Arsenic, total and filtered	10 µg/l
Lead, filtered	5 µg/l
Nickel, filtered	10 µg/l
Selenium, filtered	5 µg/l
Zinc, filtered	20 µg/l
Barium, filtered	10 ug/l
Iron as Fe, Total and filtered	50 ug/l
Total Manganese as Mn	5 ug/l
Aluminum, total	75 ug/l
Chloride as Cl	10 mg/l
Sodium as Na	0.5 mg/l
Sulfate as SO4	1.0 mg/l
Sulfide as S	1.0 mg/l
Nitrate-Nitrogen as N	1.0 mg/l
Total Phosphorus as P	0.1 mg/l
Dissolved Organic Carbon As C	1.0 mg/l
Electrical Conductivity	---- mmhos
pH	0.01 s.u.
Static Water Elevation	- Feet

* The quantitative levels indicated are laboratory goals and may not always be attainable due to sample dilutions and other necessary procedures. Explanations for non-detection levels above the quantitative levels indicated must indicate that other lower quantitative level testing procedures were not available.

A. MONITORING REQUIREMENTS (continued)

2. Settling Basin Influent Water Monitoring:

The permittee shall obtain a representative grab sample of the influent to the settling basins Semi-annually in March and September, and have a filtered sample analyzed for the parameters listed below. Monitoring reports shall be submitted on or before the 28th day of April and October for the previous 6-month period..

<u>Parameter</u>	<u>Quantitative Level*</u>
Arsenic	10 ug/l
Chloride	10 mg/l
Sodium	0.5 mg/l
Sulfate	1.0 mg/l
Ammonium-Nitrogen	0.1 mg/l
Nitrate-Nitrogen	0.1 mg/l
Total Kjeldahl Nitrogen - TKN	1.0 mg/l
pH	0.01 s.u.
Total Phosphorus	0.1 mg/l
Dissolved Organic Carbon as C	1.0 mg/l
Electrical Conductivity	---- mmhos

3. Land Application Plan and Annual Report:
See supplemental condition No. 7.

By April 28th of each year

B. STANDARD CONDITIONS

In addition to the specified conditions stated herein, the permittee shall comply with the attached Standard Conditions dated May 1, 1996.

C. SCHEDULE OF COMPLIANCE

None.

D. SUPPLEMENTAL CONDITIONS:

1. Irrigation Holding Cells and Settling Basin Requirements

- A minimum of three feet of freeboard and a minimum of 2 feet of liquid depth shall be maintained in the irrigation cells.
- The permittee shall notify KDHE, in writing in advance when known, of a substantial increase in the production rate beyond that specified in the Facility Description of this permit or any significant change in the character of the facility process water, wastewater sent to the irrigation holding cells, cooling water, mash water and/or solids. The notification shall indicate any changes in irrigation practices; or land application of solids; or in the land application of cooling water, mash water and/or solids necessary to achieve compliance with any conditions or requirements specified in this permit. Such changes are subject to approval by KDHE.
- All vegetation on the inside/outside dikes and at the waters edge and surrounding the East and West Irrigation Cells, and the settling basins shall be properly maintained by regular mowing of the grass.

D. SUPPLEMENTAL CONDITIONS (continued)

- d. The irrigation cells, and the settling basins shall be managed to prevent objectionable off-site odors and nuisance conditions.
- e. If the irrigation cells have been allowed to dry out, the cell(s) liner will need to be rehabilitated or a new liner constructed. Permittee shall contact KDHE prior to cell liner reconstruction/rehabilitation activities. The design of the resealing activities shall be developed by a Kansas Professional Engineer in conformance with pond/lagoon liner regulations KAR 28-16-160 et seq. and submitted to KDHE for approval. The construction inspection of the relining shall be under the supervision of a Kansas Professional Engineer.
- f. The permittee shall maintain the clay seal within the settling basins. Permittee shall inspect the settling basin clay liner each time mash solids are removed from a basin, correct problems and add bentonite or selected clay soils as necessary to maintain liner integrity. Inspection reports shall be made available for KDHE review upon request.

2. General Land Application Requirements

- a. Land application of irrigation water and mash solids is authorized for beneficial use on agricultural farmland. The irrigation water and mash solids are to be land applied for use as a fertilizer or soil amendment for improved crop production. Application rates plus any supplemental fertilization shall not exceed the agronomic rates for the crop being grown.
- b. The permittee shall not draw irrigation water directly from the settling basins.
- c. The irrigation water and mash solids shall not be applied to crops produced for direct human consumption. Irrigation water and mash solids may be applied to crops used for feed grains or forage.
- d. Land application of irrigation water and mash solids shall not result in off-site runoff. Irrigation water and mash solids shall not be land applied on saturated, frozen, or snow covered ground.
- e. Land application of irrigation water and mash solids shall be conducted in a manner to prevent soil, crop or groundwater contamination.
- f. The irrigation water and mash solids shall be distributed uniformly over the application site.
- g. Irrigation water shall not be applied in such a manner or location as to create nuisance conditions (odors, flies, etc.) at any neighboring residence, or within 200 feet from any well or stream. Mash solids shall not be applied in such a manner or location as to create nuisance conditions (odors, flies, etc.) at any neighboring residence, or within 200 feet from any stream or within 100 feet from any well.

D. SUPPLEMENTAL CONDITIONS (Continued)

- h. Permittee shall obtain KDHE written approval to apply irrigation water and mash solids onto any site which is subject to flooding more frequently than once in 10 years.
- i. The permittee shall follow the KDHE approved Land Application Plan for land application of irrigation water and mash solids. Application rates shall not exceed the agronomical loadings for plant nutrient needs for the crops being grown on the agricultural farmland unless approved by KDHE.
- j. Phosphorus as "P" using the Bray P-1 or Mehlich 3 analysis method shall be limited to 200 mg/kg in the top 6 inches of soil if the slope of the land application site is less than 5%. If the slope of the land application site is greater than 5%, the maximum phosphorus as "P" soil concentration using the Bray P-1 or Mehlich 3 analysis method shall be 150 mg/kg.

3. Land Irrigation Water Monitoring Requirements

- a. If land application of water from the irrigation cells has occurred or will occur during the calendar year, representative grab samples of the water used for land application from the irrigation cells shall be taken prior to the annual irrigation season and each analyzed, at a minimum, for the following parameters:

<u>Parameter</u>	<u>Quantitative Level*</u>
Chloride (mg/l)	5.0
Sodium (mg/l)	0.5
Sulfate (mg/l)	1.0
Ammonium-Nitrogen (mg/l)	0.1
Nitrate-Nitrogen (mg/l)	0.1
Total Phosphorus (mg/l)	0.1
Total Kjeldahl Nitrogen - TKN (mg/l)	1.0
Total Potassium (mg/l)	1.0
pH (standard units)	0.01
Total Calcium (mg/l)	0.5
Total Magnesium (mg/l)	0.5
Hardness (mg/l)	5.0
Alkalinity (mg/l as CaCO ₃)	5.0
Electrical Conductivity (mmhos/cm)	0.5
Total Dissolved Solids - TDS (mg/l)	5.0
Sodium Adsorption Ratio	----
Dissolved Organic Carbon as C (mg/l)	1.0

* See previous asterisk footnote

- b. The quantity (gallons) of water from each pond which is irrigated shall be monitored and recorded on a weekly basis. If no irrigation occurs during a week, this shall be noted on the monitoring report. The total pounds applied per acre for total nitrogen, phosphorus and potassium shall be calculated for each irrigation site. These monitoring records shall be submitted annually as part of the Land Application Plan/Annual Report.

D. SUPPLEMENTAL CONDITIONS (Continued)

4. Mash Solids Land Application Requirements

If land application of mash solids is utilized, the permittee shall adhere to the requirements indicated for General Land Application Requirements and Mash Solids Land Application Site Monitoring Requirements.

- a. Mash solids shall be stored at the single central stockpile location in a manner to prevent nuisance conditions and odors.
- b. Mash solids shall not be stockpiled at any land application site but may be stockpiled at an off-site location.
- c. Mash solids shall be subsurface injected or incorporated into the soil within 24 hours after land application except on fields using no-till methods of farming, incorporation is not required.
- d. Mash solids shall not be land applied on saturated, frozen, or snow covered ground.
- e. Mash solids shall be evenly applied across each application site using equipment designed to evenly apply solids across a field, such as a manure spreader.
- f. Off-site stockpiles shall not be located in areas subject to runoff, within 100 feet of a stream, 100 feet from any water wells, and 500 feet from any residence, unless waived by the resident. Stormwater controls shall be provided as needed. The annual report shall identify the offsite stockpile locations.

5. Mash Solids Land Application Site Monitoring Requirements

If land application of mash solids is utilized, the permittee shall follow these procedures:

- a. Provide to KDHE a map showing the location of the land application site(s), number of acres available for land application, the number of acres the mash solids were applied on and a map of each site using a USGS Topo scale showing area applied, property lines, and location of residences and any water wells within 500 feet of the land application site(s). If any of the land application sites are less than 500 feet from any residence, waivers must be obtained from the owners to allow land application on the site.
- b. Agronomic Application: The permittee shall land apply mash solids at a rate no greater than the agronomic rate as calculated using the information required below.

The permittee shall submit the following information as part of the Land Application Annual Report: Samples must be tested at a laboratory skilled in the testing of soil samples for agronomic purposes and interpretation of soil sample test results. Permittee should consult the county extension office for guidance on sampling, testing and suitable laboratories. These laboratories need not be KDHE-certified for these tests.

D. **SUPPLEMENTAL CONDITIONS** (Continued)

- (1) Representative sample(s) of the mash solids shall be analyzed for the specified parameters to determine the application rates. The mash solids to be land applied shall be analyzed annually, at a minimum, for the following parameters:

Percent solids
 Total Kjeldahl Nitrogen (mg/kg and total lbs applied)
 Ammonium-Nitrogen (mg/kg and total lbs applied)
 Nitrate-Nitrogen (mg/kg and total lbs applied)
 Total Nitrogen (mg/kg as N; Calculate as TKN + NO₃)
 Total Phosphorus as P (mg/kg and total lbs applied)
 Phosphate as P₂O₅ (lb/ton and total lbs applied)
 Total Potassium as K (mg/kg and total lbs applied)
 Potash as K₂O (lb/ton and total lbs applied)
 Chloride (mg/kg)
 Electrical Conductivity(mmhos)
 Sodium (mg/kg and total lbs applied)
 Sulfate (mg/kg and total lbs applied)
 pH (standard units)

- (2) A calculation of the amount of mash solids proposed to be land applied based on the estimated volume of mash solids and percent solids, the amount of nitrogen available from the mash solids land applied in that first year, the maximum Melich-3 or Bray P-1 phosphorus concentrations indicated in supplemental condition No. 2, the soil monitoring data from supplemental condition No. 4 collected prior to land application of the mash solids, the crops to be grown, and the needs of the proposed crops.
- c. The mash solids monitoring data from paragraph 6(b) above; and the soil monitoring data from supplemental condition No. 4 shall be submitted annually to the Department as part of the Land Application Annual Report.

6. **Land Application Soil Monitoring Requirements**

Prior to land application of irrigation water and/or the land application of mash solids:

- a. Composite soil samples shall be analyzed annually prior to application of irrigation water onto each land application site that is expected to be used in the upcoming growing season and for the sites that were used for land application of irrigation water in the previous year.
- b. Composite samples shall be analyzed annually from at least 20% or five sites, whichever is greater, of the mash solids application sites expected to be used in the upcoming growing season prior to land application of mash solids, and at the end of the growing season. If the same mash solids land application site is used in successive years, the post-growing season sample will represent the pre-application sample for the subsequent year. Selection of fields for mash solids application soil monitoring should consider presenting a representative perspective of the mash solids application program, including field characteristics (soil type, irrigated versus dry land farmed ground, etc.), cropping practices, and various crops grown (wheat, grain sorghum, versus corn). The rationale for field selection should be presented in the Land Application Annual Report.

D. SUPPLEMENTAL CONDITIONS (Continued)

- c. At least ten - 6 inch deep core samples shall be taken from each irrigation land application site established (on the East, West and South fields via gated pipe and/or on the two center pivot systems in the West Half of 20-18-36) and from each 120 acres or less of each mash solids land application site for which sampling is required in accordance with section D.6.b. Composite all cores from each sampling grid site into one sample. From the same core holes, take a second sample (6 inch to 24 inch deep or as deep as you can go but not more than 24 inches) and composite these cores into one sample.
- d. Samples must be tested at a laboratory skilled in the testing of soil samples for agronomic purposes and interpretation of soil sample test results. Permittee should consult the county extension office for guidance on sampling, testing and suitable laboratories. These laboratories need not be KDHE-certified for these tests.
- e. The top core composite sample shall be analyzed, at a minimum, for the following parameters:
 - pH (standard units)
 - Exchangeable Ammonium as Nitrogen (ppm and lb/acre)
 - Nitrate-Nitrogen (ppm and lb/acre)
 - Melich-3 or Bray P-1 Extractable Phosphorus (ppm and lb/acre)
 - Extractable Potassium (ppm and lb/acre)
 - Extractable Sodium as Percent of Cations (%)
 - Electrical Conductivity(mmhos)
- f. The bottom core composite sample shall be analyzed, at a minimum, for nitrate-nitrogen (ppm and lb/acre).

7. Land Application Plan and Annual Report

- a. The permittee shall continue to implement the KDHE approved Land Application Plan. Annual Reports also shall address any changes in the Land Application Plan and discuss sample results of all required monitoring data. Based on monitoring data, adjustment of application rates may be required to prevent crop or soil damage, groundwater, stormwater or surface water contamination or nuisance conditions.
- b. The Land Application Plan and Annual Report including the Irrigation water, mash solids and application site soil analytical results shall be submitted by April 28th of each year for the previous calendar year to KDHE.

If no irrigation or land application of mash solids occurs during a calendar year, no sampling or testing of the irrigation water, mash solids or application site soils are required. The annual report is still required and is to indicate "no irrigation or land application of mash solids conducted during the calendar year" as applicable on the monitoring report.

The report shall address, at a minimum, the following:

- (1) Any changes in the land application procedures/rates based on results of the monitoring data;

D. SUPPLEMENTAL CONDITIONS (Continued)

- (2) Rationale for selection of the mash solids land application sites for monitoring and any additions or deletions of land application sites; and
 - (3) As part of the Land Application Annual Report, the permittee shall maintain records of the quantity of irrigation water and mash solids applied to each land application site; the projected crops to be grown on the application sites, and the projected crop yields. The agronomic rates (lbs per parameter/acre) shall be calculated for the sites. This information shall include the date, application site and the type and quantity of irrigation water or mash solids land applied. This data shall be submitted annually to the Department as part of the Land Application Plan/Annual Report.
 - c. The Land Application Plan and Annual Report shall include a certificate of review by a person, acceptable to KDHE, who is knowledgeable through education and training in crop moisture and nutrient requirements i.e., crop science or agronomy. The land application review shall address the rate and quantities of irrigation water and mash solids applied; the application rate of nutrients from the irrigation water and mash solids, and other nutrient sources including commercial fertilizers; salinity issues; and presence or accumulation of other pollutants of concern such as sodium, boron, and metals. The land application review shall be based on the cropping practice that year and the measured land application site soil characteristics. The review and certification shall indicate whether the irrigation water and mash solids, and any commercial fertilizer added to the sites were applied in conformance with the requirements of this permit, agronomic application rates, and generally accepted agricultural practices. At land application sites where the requirements of this permit were violated, agronomic application rates were exceeded, or generally accepted agricultural practices were not followed, the review certification shall recommend appropriate corrective actions. The review also needs to address the irrigation and mash solids Land Application Plan for the upcoming calendar year. The permittee shall provide to KDHE the qualifications of the person conducting the annual land application review and certification unless provided in previous land application report submittals.
8. Permittee shall maintain a list of all pesticides that have been included in the raw products for the calendar year. Material Safety Data Sheets (MSDS) for the pesticides on the raw products received in the calendar year are to be retained on-site and provided to KDHE upon request.
 9. This permit does not authorize discharge of stormwater from industrial activities. Discharge of stormwater from industrial activities is authorized under the Stormwater Runoff Associated with Industrial Activity General Permit.
 10. Prior to use of the east irrigation cell, permittee shall submit to KDHE an approvable plan for cleaning out the east irrigation cell and reconstructing the cell clay liner. The plan shall include conducting a static seepage test, after reconstructing the liner on the east irrigation cell with a minimum of two feet of water, and submitting the results to KDHE – Bureau of Water.

D. SUPPLEMENTAL CONDITIONS (Continued)

If the seepage test for the east irrigation cell indicates a seepage rate in excess of 0.125 inches per day at maximum operating depth, the water shall be removed and bottom and sides of the basin's clay lining shall be thoroughly inspected for any damage and thickness of clay liner. Necessary repairs, including but not limited to installation of a synthetic liner, reconstruction of the clay liner, or addition of bentonite or selected clay soil shall be completed prior to putting the basin back in service. The basin shall then again be filled with at least two feet of water and retested to confirm a seepage rate not in excess of 0.125 inches per day at maximum operating depth. A plan to protect the inner sides of the east irrigation cell from loss of seal will be required prior to placing the basin back in service.

STANDARD CONDITIONS FOR NON-OVERFLOWING WASTEWATER

TREATMENT FACILITIES

1. Definitions:
 - A. The terms "Director", "Division", and "Department" refer to the Director, Division of Environment, Kansas Department of Health and Environment, respectively.
 - B. "Bypass" means any diversion of waste streams from any portion of a treatment plant or collection system.
 - C. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
2. Monitoring Requirements: If the water level in the lagoon rises to within two feet of the top of the lagoon dikes, the permittee must so notify the Division immediately.

Land application of wastewater and/or wastewater sludges from this facility is authorized by this permit only if it is specifically stated in the permit or prior authorization from the Division is obtained.

The municipal permittee shall promptly notify the Division by telephone upon discovering crude oil or any petroleum derivative in its collection system or wastewater treatment plant.
3. Schedule of Compliance: No later than 14 calendar days following each date identified in the "Schedule of Compliance," the permittee shall submit to the Division, either a report of progress or, in the case of specific action being required by identified dates, a written notice of compliance or noncompliance. In the latter case, the notice shall include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next schedule requirements, or, if there are no more scheduled requirements, when such noncompliance will be corrected.
4. Change in Operation: Any anticipated facility expansions, production increases, or process modifications which will result in new, different, or increased loadings, either hydraulic or pollutant, must be reported in writing to the Division at least 180 days before such change.
5. Facilities Operation: The permittee shall at all times maintain in good working order and efficiently and effectively operate all treatment, collection, control systems or facilities, to achieve compliance with the terms of this permit. The permittee shall take all necessary steps to minimize or prevent any adverse impact to waters of the State resulting from noncompliance with this permit. When necessary to maintain compliance with the permit conditions, the permittee shall halt or reduce those activities under its control which generate wastewater routed to this facility.
6. Immediate Reporting Required: Any diversion from, or bypass of facilities necessary to maintain compliance with the permit is prohibited, except: where no feasible alternatives to the bypass exist and 1) where necessary to prevent loss of human life, personal injury or severe property damage; or 2) where excessive stormwater inflow or infiltration would damage any facilities necessary to comply with this permit or 3) where the permittee notifies the Director seven days in advance of an anticipated bypass. The Director or Director's designee may approve a bypass, after considering its adverse effects, if any of the three conditions listed above are met. The permittee shall immediately notify the Division by telephone [(785) 296-5517 or the appropriate KDHE District Office] of each bypass and shall confirm the telephone notification with a letter explaining what caused this spill or bypass and what actions have been taken to prevent recurrence. Written notification shall be provided to the Director within five days of the permittee becoming aware of the bypass. The Director or Director's designee may waive the written report on a case-by-case basis.
7. Unless specified otherwise, all reports required by this permit, shall be submitted to: Kansas Department of Health & Environment, Bureau of Water-Technical Services Section, 1000 SW Jackson St., Suite 420, Topeka, KS 66612-1367.
8. Removed Substances: Solids, sludges, filter backwash, and other pollutants removed in the course of treatment or control of wastewaters shall be disposed of in a manner acceptable to the Division.

9. **Power Failures:** The permittee shall provide an alternative power source sufficient to operate the wastewater facilities or otherwise control pollution and all discharges upon the loss of the primary source of power to the wastewater facilities.
10. **Right of Entry:** The permittee shall allow authorized representatives of the Division upon the presentation of credentials, to enter upon the permittee's premises where the facility is located, or in which are located any records required to be kept by this permit, and at reasonable times, to have access to and copy any records required to be kept by this permit, to inspect any monitoring equipment or monitoring methods required in this permit, and to sample any influents to, discharges from, or materials in the wastewater facilities.
11. **Transfer of Ownership:** The permittee shall notify the succeeding owner or controlling person of the existence of this permit by certified letter, a copy of which shall be forwarded to the Division. The succeeding owner shall secure a new permit. The permit is not transferable to any person except after notice and approval by the Director. The Director may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary.
12. **Availability of Records:** Except for data determined to be confidential, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Department. Knowingly making any false statement on any such report or tampering with equipment to falsify data may result in the imposition of criminal penalties as provided for in KSA 65-170c.
13. **Records Retention:** All records and information resulting from the monitoring activities required by this permit shall be retained for a minimum of 3 years, or longer if requested by the Division. The permittee shall also furnish upon request, copies of all records required to be kept by this permit.
14. **Test Procedures:** All analysis required by this permit shall conform to the requirements of 40 CFR Part 136 and shall be conducted in a laboratory certified by this Department.
15. **Permit Modifications and Terminations:** As provided by KAR 28-16-62, after notice and opportunity for a hearing, this permit may be modified, suspended or revoked or terminated in whole or in part during its term for cause as provided, but not limited to those set forth in KAR 28-16-62 and KAR 28-16-28b through f. The permittee shall furnish to the Director, within a reasonable amount of time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit.
16. **Operator Certification:** The permittee shall ensure that the wastewater facilities are under the supervision of an operator certified by the Department. If the permittee does not have a certified operator or loses its certified operator, the appropriate steps shall be taken to obtain a certified operator as required by KAR 28-16-30 et seq.
17. **Severability:** The provisions of this permit are severable. If any provision of this permit or any circumstance is held invalid, the application of such provision to other circumstances and the remainder of the permit shall not be affected thereby.
18. **Removal from Service:** The permittee shall inform the Division at least three months before a pumping station, treatment unit, or any other part of the treatment facility permitted by this permit is to be removed from service and shall make arrangements acceptable to the Division to decommission the facility or part of the facility being removed from service such that the public health and waters of the state are protected.
19. **Duty to Reapply:** A permit holder wishing to continue any activity regulated by this permit after the expiration date, must apply for a new permit at least 180 days prior to expiration of the permit.
20. **Property Rights:** The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights nor any infringements of or violation of federal, state or local laws or regulations.



310 East Hwy 96 ~ PO Box 848
Leoti, KS 67861

I-UA 26 NP 01
ESE Alcohol
Permit EB
Leoti

October 2, 2018

Eric Staab, P.E.
Kansas Dept. of Health & Environment
Division of Environment, Bureau of Water
1000 SW Jackson, Suite 420
Topeka, Kansas 66612-1367

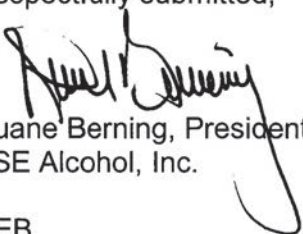
Re: Kansas Water Pollution Control
Permit No. I-UA26-NP01

Dear Mr. Staab;

Attached please find sample results as required for the above referenced permit that are due on October 28, 2018. Samples were taken on September 5th and 6th 2018.

Should you have any questions or comments feel free to call at your convenience.

Respectfully submitted,


Duane Berning, President
ESE Alcohol, Inc.

DEB
Enclosures

cc: Brittany Bennett
Franky Arnwine
File

RECEIVED

OCT 8 - 2018

BUREAU OF WATER

ESE ALCOHOL, INC.
PO BOX 848
LEOTI, KS 67861

SWD

MONITORING REPORT
KDHE - DIVISION OF ENVIRONMENT
BUREAU OF WATER - TECHNICAL SERVICES SECTION
FORBES FIELD, BUILDING 283
TOPEKA, KS 66620-001
ATTN: PERMITS & COMPLIANCE

DUE QUARTERLY: JAN 28TH, APRIL 28TH,
JULY 28TH AND OCT 28TH FOR A YEAR.
THEN ANNUALLY THEREAFTER.

ISSUE DATE: 10/01/2010
EXPIRATION DATE: 09/30/2015

TELEPHONE NO. (620) 375-4904

EPA = TARGET RATE

NAS = NATIONAL ACADEMY OF SCIENCES

NBDWR = NATIONAL SECONDARY DRINKING WATER REGULATIONS (Highlighted)

GROUNDWATER WELLS

PAGE 1

KANSAS PERMIT # I-UA26-NP01

KANSAS PERMIT # I-UA26-NP01

STANDARD	ARSENIC TOTAL	ARSENIC FILTERED	LEAD FILTERED	NICKEL FILTERED	SELENIUM FILTERED	ZINC FILTERED	BARIUM FILTERED	IRON TOTAL	IRON FILTERED	TOTAL MANGANESE	ALUMINUM	CHLORIDE	SODIUM
LIMIT	10 ug/L	10 ug/L	5 ug/L	10 ug/L	5 ug/L	20 ug/L	10 ug/L	50 ug/L	50 ug/L	5 ug/L	75 ug/L	10 mg/L	0.5 mg/L
GWW #1 (ESE DOMESTIC)													
TESTING BY PACE ANALYTICAL SERVICES, INC.													
REPORTING PERIOD 10/28/2018													
FILTERED SAMPLES													
quantity (gallons)	20.0 ug/L	20.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 mg/L	500.0 ug/L
09/06/2018	7.5	5.2	ND	ND	ND	ND	139	1,240	761	222	ND	58.6	30,800
GWW #2 (ESE EAST SUPPLY)													
TESTING BY PACE ANALYTICAL SERVICES, INC.													
REPORTING PERIOD 10/28/2018													
FILTERED SAMPLES													
quantity (gallons)	6.0 ug/L	6.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 mg/L	500.0 ug/L
09/06/2018	19.4	16.4	ND	ND	ND	ND	146	6,850	5,520	539	ND	71	35,200
GWW #3 (ESE-GREEN)													
TESTING BY PACE ANALYTICAL SERVICES, INC.													
REPORTING PERIOD 10/28/2018													
FILTERED SAMPLES													
quantity (gallons)	10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 mg/L	500.0 ug/L
09/06/2018	4	3.9	ND	ND	ND	72.6	132	ND	ND	ND	ND	32.1	236
GWW #5 (ESE-KING)													
TESTING BY PACE ANALYTICAL SERVICES, INC.													
REPORTING PERIOD 10/28/2018													
FILTERED SAMPLES													
quantity (gallons)	10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 mg/L	500.0 ug/L
09/06/2018	2.6	2.5	ND	9.9	ND	ND	109	ND	ND	ND	ND	126	62,400
GWW TFT (PRIVATE WELL)													
TESTING BY PACE ANALYTICAL SERVICES, INC.													
REPORTING PERIOD 10/28/2018													
FILTERED SAMPLES													
quantity (gallons)	10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 mg/L	500.0 ug/L
09/06/2018	5.3	5.0	ND	ND	ND	61.8	57.5	ND	ND	ND	ND	37.8	21,200
GWW LEE (PRIVATE WELL)													
TESTING BY PACE ANALYTICAL SERVICES, INC.													
REPORTING PERIOD 10/28/2018													
FILTERED SAMPLES													
quantity (gallons)	10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 ug/L	10.0 mg/L	500.0 ug/L
09/06/2018	4.5	4.5	ND	13.1	ND	ND	340	444	397	257	ND	104	38,500

ESE ALCOHOL, INC.
PO BOX 848
LEOTI, KS 67861

SWD

MONITORING REPORT
KDHE - DIVISION OF ENVIRONMENT
BUREAU OF WATER - TECHNICAL SERVICES SECTION
FORBES FIELD, BUILDING 283
TOPEKA, KS 66620-001
ATTN: PERMITS & COMPLIANCE

DUE QUARTERLY: JAN 28TH, APRIL 28TH,
JULY 28TH AND OCT 28TH FOR A YEAR.
THEN ANNUALLY THEREAFTER.

ISSUE DATE: 06/01/04

EXPIRATION DATE: 12/31/07

TELEPHONE NO. (620) 375-4904

EPA = TARGET RATE

NAS = NATIONAL ACADEMY OF SCIENCES

NBOWR = NATIONAL SECONDARY DRINKING WATER REGULATIONS (Highlighted)

GROUNDWATER WELLS

PAGE 2

KANSAS PERMIT # I-UA26-NP01

KANSAS PERMIT # I-UA26-NP01

SULFATE NBOWR 1.0 mg/L	SULFIDE 1.0 mg/L	NO ₃ NITRATE 1.0 mg/L	TOTAL PHOSPHORUS 0.1 mg/L	TOTAL ORGANIC CARBON 1.0 mg/L	ELECTRICAL CONDUCTIVITY mmhos	LAB pH 0.10ug/L	FIELD pH NBOWR 0.01 s.u	STATIC WATER ELEVATION Feet
GWW #1 (ESE DOMESTIC)								
TESTING BY PACE ANALYTICAL SERVICES, INC.								
REPORTING PERIOD 10/28/2018								
FILTERED SAMPLES								
69.4	ND	4.2	ND	1.4	0.559	NT	7.02	NT
GWW #2 (ESE EAST SUPPLY)								
TESTING BY PACE ANALYTICAL SERVICES, INC.								
REPORTING PERIOD 10/28/2018								
FILTERED SAMPLES								
72.7	ND	3.5	ND	1.7	0.649	NT	6.76	NT
GWW #3 (ESE-GREEN)								
TESTING BY PACE ANALYTICAL SERVICES, INC.								
REPORTING PERIOD 10/28/2018								
FILTERED SAMPLES								
64.5	ND	6.0	ND	1.1	0.467	NT	7.26	NT
GWW #5 (ESE-KING)								
TESTING BY PACE ANALYTICAL SERVICES, INC.								
REPORTING PERIOD 10/28/2018								
FILTERED SAMPLES								
104	ND	9.5	ND	1.4	0.843	NT	6.99	NT
GWW TFT (PRIVATE WELL)								
TESTING BY PACE ANALYTICAL SERVICES, INC.								
REPORTING PERIOD 10/28/2018								
FILTERED SAMPLES								
66.9	3.2	6.8	0.13	1.2	0.423	NT	7.46	NT
GWW LEE (PRIVATE WELL)								
TESTING BY PACE ANALYTICAL SERVICES, INC.								
REPORTING PERIOD 10/28/2018								
FILTERED SAMPLES								
35.2	ND	1.1	ND	4.0	0.944	NT	6.56	NT

504² Sulfate NO₃ P TOC EC pH pH S

012

ESE ALCOHOL, INC.
PO BOX 848
LEOTI, KS 67861

SWD

MONITORING REPORT
KDHE - DIVISION OF ENVIRONMENT
BUREAU OF WATER - TECHNICAL SERVICES SECTION
FORBES FIELD, BUILDING 283
TOPEKA, KS 66620-001

DUE QUARTERLY: JAN 28TH, APRIL 28TH,
JULY 28TH AND OCT 28TH FOR A YEAR,
THEN ANNUALLY THEREAFTER.

ISSUE DATE: 10/01/2019
EXPIRATION DATE: 09/30/2015

TELEPHONE NO. (620) 375-4904

LRMITS & COMPLIANCE

EPA = TARGET RATE

NAS = NATIONAL ACADEMY OF SCIENCES

NSDWR = NATIONAL SECONDARY DRINKING WATER REGULATIONS (highlighted)

GROUNDWATER MONITORING WELLS

PAGE 1

KANSAS PERMIT # I-UA26-NP01

KANSAS PERMIT # I-UA26-NP01

	ARSENIC TOTAL	ARSENIC FILTERED	LEAD FILTERED	NICKEL FILTERED	SELENIUM FILTERED	ZINC FILTERED	BARIUM FILTERED	IRON TOTAL	IRON FILTERED	TOTAL MANGANESE	ALUMINUM	CHLORIDE	SODIUM
STANDARD	10 ug/L	10 ug/L	5 ug/L	10 ug/L	5 ug/L	20 ug/L	10 ug/L	50 ug/L	50 ug/L	5 ug/L	75 ug/L	10 mg/L	NAS
LIMIT	10 ug/L	10 ug/L	5 ug/L	10 ug/L	5 ug/L	20 ug/L	10 ug/L	50 ug/L	50 ug/L	5 ug/L	75 ug/L	10 mg/L	0.5 ug/L
GroundWater Monitoring Well #1													
TESTING BY PACE ANALYTICAL SERVICES, INC.													
FILTERED-DISSOLVED (LOW FLOW PUMP)													
quantitative level	1.0 ug/L	1.0 ug/L	10.0 ug/L	5.0 ug/L	15.0 ug/L	50.0 ug/L	5.0 ug/L	50.0 ug/L	50.0 ug/L	5.0 ug/L	75.0 ug/L	10.0 mg/L	500.0 ug/L
09/06/2018	2.5	2.5	ND	ND	ND	ND	128	ND	ND	8.8	ND	133	60,300
GroundWater Monitoring Well #2													
TESTING BY PACE ANALYTICAL SERVICES, INC.													
FILTERED-DISSOLVED (LOW FLOW PUMP)													
quantitative level	5.0 ug/L	5.0 ug/L	10.0 ug/L	5.0 ug/L	15.0 ug/L	50.0 ug/L	5.0 ug/L	50.0 ug/L	50.0 ug/L	5.0 ug/L	75.0 ug/L	50.0 mg/L	500.0 ug/L
09/06/2018	39.4	37.7	ND	94.5	ND	ND	5,210	21,200	20,400	1,190	ND	503	139,000
GroundWater Monitoring Well #3													
TESTING BY PACE ANALYTICAL SERVICES, INC.													
FILTERED-DISSOLVED (LOW FLOW PUMP)													
quantitative level	5.0 ug/L	5.0 ug/L	10.0 ug/L	5.0 ug/L	15.0 ug/L	50.0 ug/L	5.0 ug/L	50.0 ug/L	50.0 ug/L	5.0 ug/L	75.0 ug/L	20.0 mg/L	500.0 ug/L
09/06/2018	78.9	71.8	ND	74.3	ND	ND	2,750	6,270	5,720	798	ND	195	70,600
GroundWater Monitoring Well #4													
TESTING BY PACE ANALYTICAL SERVICES, INC.													
FILTERED-DISSOLVED (LOW FLOW PUMP)													
quantitative level	2.0 ug/L	1.0 ug/L	10.0 ug/L	5.0 ug/L	15.0 ug/L	50.0 ug/L	5.0 ug/L	50.0 ug/L	50.0 ug/L	5.0 ug/L	75.0 ug/L	10.0 mg/L	500.0 ug/L
09/05/2018	5.2	3.1	ND	39.3	ND	ND	113	652	274	1,130	ND	92.4	53,500
GroundWater Monitoring Well #5													
TESTING BY PACE ANALYTICAL SERVICES, INC.													
FILTERED-DISSOLVED (LOW FLOW PUMP)													
quantitative level	5.0 ug/L	5.0 ug/L	10.0 ug/L	5.0 ug/L	15.0 ug/L	50.0 ug/L	5.0 ug/L	50.0 ug/L	50.0 ug/L	5.0 ug/L	75.0 ug/L	20.0 mg/L	500.0 ug/L
09/06/2018	35.2	32.9	ND	36.4	ND	ND	3,450	16,700	16,000	3490	ND	349	188,000
GroundWater Monitoring Well #7													
TESTING BY PACE ANALYTICAL SERVICES, INC.													
FILTERED-DISSOLVED (LOW FLOW PUMP)													
quantitative level	5.0 ug/L	5.0 ug/L	10.0 ug/L	5.0 ug/L	15.0 ug/L	50.0 ug/L	5.0 ug/L	50.0 ug/L	50.0 ug/L	5.0 ug/L	75.0 ug/L	20.0 mg/L	500.0 ug/L
09/05/2018	83.5	83.7	ND	107	ND	ND	456	26,000	26,300	1,430	ND	274	65,500
GroundWater Monitoring Well #8													
TESTING BY PACE ANALYTICAL SERVICES, INC.													
FILTERED-DISSOLVED (LOW FLOW PUMP)													
quantitative level	50.0 ug/L	50.0 ug/L	10.0 ug/L	5.0 ug/L	15.0 ug/L	50.0 ug/L	5.0 ug/L	50.0 ug/L	50.0 ug/L	5.0 ug/L	75.0 ug/L	50.0 mg/L	500.0 ug/L
09/05/2018	266	231	ND	309	ND	ND	1,010	21,100	20,900	885	ND	370	116,000

ESE ALCOHOL, INC.
PO BOX 848
LEOTI, KS 67861

SWD

MONITORING REPORT
KDHE - DIVISION OF ENVIRONMENT
BUREAU OF WATER - TECHNICAL SERVICES SECTION
FORBES FIELD, BUILDING 283
TOPEKA, KS 66620-001
ATTN: PERMITS & COMPLIANCE

DUE QUARTERLY: JAN 28TH, APRIL 28TH,
JULY 28TH AND OCT 28TH FOR A YEAR.
THEN ANNUALLY THEREAFTER.

ISSUE DATE: 06/01/04

EXPIRATION DATE: 12/31/07

TELEPHONE NO. (620) 375-4904

EPA = TARGET RATE

NSDWR = NATIONAL SECONDARY DRINKING WATER REGULATIONS (highlighted)

NAS = NATIONAL ACADEMY OF SCIENCES

NSDWR = NATIONAL SECONDARY DRINKING WATER REGULATIONS (highlighted)

GROUNDWATER MONITORING WELLS

PAGE 2

KANSAS PERMIT # I-UA26-NP01

KANSAS PERMIT # I-UA26-NP01

SULFATE NSDWR	SULFIDE	NO ₃ NITRATE NSD	TOTAL PHOSPHORUS	TOTAL ORGANIC CARBON	FIELD ELECTRICAL CONDUCTIVITY	FIELD pH NSDWR	STATIC WATER ELEVATION													
1.0 mg/L	1.0 mg/L	0.10 mg/L	0.1 mg/L	1.0 mg/L	mmhos	0.01 s.u.	Feet													
GroundWater Monitoring Well #1																				
TESTING BY PACE ANALYTICAL SERVICES, INC.										REPORTING PERIOD 10/28/2018										
10.0 mg/L 93.2	1.0 mg/L ND	0.50 mg/L 8.9	0.10 mg/L ND	1.0 mg/L 1.3	mmhos 0.894	.10 s.u. 6.62	FEET 142.17													
GroundWater Monitoring Well #2																				
TESTING BY PACE ANALYTICAL SERVICES, INC.										REPORTING PERIOD 10/28/2018										
1.0 mg/L 1.4	1.0 mg/L 1.2	0.10 mg/L 0.12	0.10 mg/L ND	1.0 mg/L 8.2	mmhos 2.54	.10 s.u. 6.45	FEET 142.92													
GroundWater Monitoring Well #3																				
TESTING BY PACE ANALYTICAL SERVICES, INC.										REPORTING PERIOD 10/28/2018										
1.0 mg/L 1.6	1.0 mg/L ND	0.10 mg/L ND	0.10 mg/L ND	1.0 mg/L 8.3	mmhos 1.85	.10 s.u. 6.61	FEET 142.14													
GroundWater Monitoring Well #4																				
TESTING BY PACE ANALYTICAL SERVICES, INC.										REPORTING PERIOD 10/28/2018										
10.0 mg/L 88.2	1.0 mg/L ND	0.10 mg/L ND	0.10 mg/L ND	1.0 mg/L 2.9	mmhos 0.992	.10 s.u. 6.61	FEET 143.87													
GroundWater Monitoring Well #5																				
TESTING BY PACE ANALYTICAL SERVICES, INC.										REPORTING PERIOD 10/28/2018										
1.0 mg/L ND	1.0 mg/L ND	0.10 mg/L ND	0.10 mg/L ND	1.0 mg/L 4.1	mmhos 2.68	.10 s.u. 6.51	FEET 140.16													
GroundWater Monitoring Well #7																				
TESTING BY PACE ANALYTICAL SERVICES, INC.										REPORTING PERIOD 10/28/2018										
1.0 mg/L ND	2.0 mg/L 3.2	0.10 mg/L 0.11	0.10 mg/L ND	1.0 mg/L 7.6	mmhos 1.73	.10 s.u. 6.49	FEET 144.75													
GroundWater Monitoring Well #8																				
TESTING BY PACE ANALYTICAL SERVICES, INC.										REPORTING PERIOD 10/28/2018										
1.0 mg/L ND	1.0 mg/L ND	0.10 mg/L ND	0.10 mg/L ND	1.0 mg/L 12.4	mmhos 2.72	.10 s.u. 6.4	FEET 144.44													

ESE ALCOHOL, INC.
PO BOX 848
LEOTI, KS 67861

SWD

MONITORING REPORT
KDHE - DIVISION OF ENVIRONMENT
BUREAU OF WATER - TECHNICAL SERVICES SECTION
FORBES FIELD, BUILDING 283
TOPEKA, KS 66620-0001
ATTN: PERMITS & COMPLIANCE

SAMPLED AND ANALYZED PRIOR TO IRRIGATION
SEASON WHEN UTILIZED FOR IRRIGATION
REPORTED ANNUALLY

ISSUE DATE: 10/01/2010
EXPIRATION DATE: 09/30/2015

TELEPHONE NUMBER: (620) 375-4904

KANSAS PERMIT # I-UA26-NP01
ISSUE DATE: 06/01/2004
EXPIRATION DATE: 09/30/2015

MASH WATER IRRIGATION

PAGE 1

KANSAS PERMIT # I-UA26-NP01

KANSAS PERMIT # I-UA26-NP01

CHLORIDE	SODIUM	SULPHATE	AMMONIUM NH3-N	NITRATE NOS	TOTAL PHOSPHOROUS	TKN	POTASSIUM	pH	TOTAL CALCIUM	TOTAL MAGNESIUM	HARDNESS	ALKALINITY	ELECTRICAL CONDUCTIVITY	TDS	SAR ABSORPTION	DISSOLVED ORGANIC CARBON	
TESTED BY PACE ANALYTICAL SERVICES, INC.														REPORTING PERIOD 10/28/2018			
09/06/2018	543	360,000	379	160	0.23	726	611	110,000	4.8	220,000	353,000	2,000,000	673	7,440	8,780	3.5	8,620

1
8800
TDS
1 doc

Mash water

[Print](#)
[ISL Search](#) >> [ISL Results](#) >>

**Kansas Department of Health and Environment
Bureau of Environmental Remediation
Identified Sites List Information**

Project Code:	CI10271713	Site Status:	Active
Site Name:	ESE ALCOHOL PLANT		
CERCLIS Number:			
Other Names:			
Address:	EAST K-96	City:	LEOTI
Zip Code:	67861		
County:	WH	River Basin:	Upper Arkansas
Latitude:	38.48342	Longitude:	-101.32875
Program Name:	Voluntary Cleanup	Project Manager:	BENNETT, B.
Contaminants:	Chlorides, Heavy Metal, Inorganic		

*brilliant
Bennett
6-14-27*

Environmental Use Control In Place? No

We are currently experiencing technical difficulties with requests for some documents. If an attempt to download an individual document from the "Documents/Photos Available" link does not return the expected results, please contact the Project Manager associated with the Identified Site or the Remedial Section at 785-296-1660. We are working to resolve this problem as quickly as possible and apologize for any inconvenience this may cause.

Documents/Photos Available
(Opens in New Window)

Site Narrative:

ESE Alcohol, Inc. submitted an application to the VCPRP for the property in December 2002. The property was first developed in 1980 with the construction of the Fuel Ethanol Plant using the western 15 acres of ESE Alcohol's 62 acre plot. Prior to the plant's construction the land was used entirely for agricultural uses. Currently, the remaining acreage is used as farm land.

The facility has an Agricultural Water Pollution Control Permit (I-UA26-NP01) for the application of the irrigation water and process solids for agricultural use. The quarterly sampling of three groundwater monitoring wells at the facility indicated that chloride, sodium, and arsenic concentrations in the monitoring wells were above the background levels indicated at nearby wells. The monitoring indicates that domestic wells are not impacted by the apparent contamination; however, the downgradient position of the domestic wells is a cause for concern and they should continue to be monitored.

In Sept., 2003 three additional monitoring wells were installed at the site. Elevated levels of arsenic were identified during the VCI. Based on this, KDHE determined that additional monitoring of the site was necessary. KDHE requested additional monitoring wells at the site to better determine the extent of the contamination upgradient of the domestic water well and to determine if the contamination has migrated offsite. Two additional monitoring wells were installed during 2005. Following review of groundwater monitoring results, KDHE recommended collecting unfiltered samples using a low-flow technique.

During 2006, ESE installed low-flow purging/sampling pumps. Groundwater sampling results were consistent with previous results. A water line was run from one of ESE's up-gradient supply wells to a potential receptor located immediately down-gradient of the ESE property. During 2007, groundwater data was provided to the Kansas Geological Survey (KGS). KGS indicated it was possible that organic matter in the process water changed the oxidation state of water seeping through the lagoon and was mobilizing arsenic in the soil which, in turn, migrated to groundwater. During the Fall of 2007, KGS conducted a study which confirmed that reducing conditions mobilized the arsenic naturally present in the soil and aquifer sediments. Early in 2008, groundwater samples were collected from an irrigation well and two private residences located a quarter mile east of ESE's property to delineate the extent of groundwater contamination and to provide assurance that human health wasn't threatened. Results indicated arsenic concentrations were below the RSKs in these wells. With this data, VCI objectives have been met.

KDHE requested an additional downgradient monitoring well. An inoperable pump and piping were removed from an existing irrigation well in the area where the downgradient well was to be installed. A submersible pump was installed and the irrigation well has been incorporated into the semi-annual groundwater monitoring events; therefore installation of an additional downgradient monitoring well was not necessary.

Semi-annual groundwater monitoring is ongoing at this time. The most recent groundwater monitoring report was approved June 19, 2017.

Legal Description:

Township	Range	Section	Parcel	Description
18	36W	17		SW

Actions Completed:

Activity Type	Activity	Start	Completed
PRP IDENTIFICATION/NEGOTIATION	Voluntary Agreement		01/08/2003
INVESTIGATION	Voluntary Cleanup Investigation (VCI)	05/12/2003	01/23/2009

Actions Underway:

Activity Type	Activity	Start	Completed
MONITORING	VC Monitoring	01/02/2011	

Actions Proposed:

Activity Type	Activity	Start	Completed
EVALUATION OF REMEDIAL ALTERNATIVES	Voluntary Cleanup Proposal	01/21/2009	

Map of Identified Site
(One-mile radius circle around selected site)

[Click here for interactive map.](#)

C1 102-71713, 8.2

RECEIVED

~~MAY~~ 10 2017
June

BUREAU OF
ENVIRONMENTAL REMEDIATION

SB 6/16/17

FINAL

ESE Alcohol Monitoring Report March 2017

ESE Alcohol, Inc., Leoti, Kansas
310 East Highway 96
Leoti, Wichita County, Kansas

Prepared for:

Mr. Duane Berning, President

ESE Alcohol, Inc.
P.O. Box 848
Leoti, Kansas 67861

and

Kansas Department of Health and Environment

Bureau of Environmental Remediation
Voluntary Cleanup Unit



Project B1701827
KDHE Project Code C1-102-71713

June 8, 2017

Braun Intertec Corporation

BRAUN
INTERTEC
The Science You Build On

BRAUN INTERTEC

The Science You Build On.

Braun Intertec Corporation
11529 W 79th Street, Building 21
Lenexa, KS 66214

Phone: 913.962.0909
Fax: 913.962.0924
Web: braunintertec.com

June 8, 2017

Project B1701827

Ms. Brittany Bennett
KDHE - Bureau of Environmental Remediation
Voluntary Cleanup Unit
1000 SW Jackson Street, Suite 410
Topeka, Kansas 66612-1367

Re: ESE Alcohol Monitoring Report – March 2017
ESE Alcohol, Inc., 310 East Highway 96
Leoti, Wichita County, Kansas

Dear Ms. Bennet:

Braun Intertec Corporation (Braun Intertec), on behalf of ESE Alcohol, Inc. (ESE), is pleased to present this Monitoring Report for the ESE Alcohol facility site to the Kansas Department of Health and Environment (KDHE). This report presents results of ongoing groundwater monitoring currently being conducted at the facility.

If you have any questions regarding this letter or the attached report, please contact Frank Arnwine at 785.224.0974.

Sincerely,

BRAUN INTERTEC CORPORATION



David Ross
Staff Scientist



Franky D. Arnwine, P.G.
Principal Geologist

Attachment: ESE Alcohol Monitoring Report – March 2017

AA/EOE

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- 3: Potentiometric Surface Map, March 2017
- 4: Chloride Isoconcentration Map, March 2017
- 5: Dissolved Arsenic Isoconcentration Map, March 2017
- 6: Parameter Correlation Map, March 2017

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- 3: Irrigation Water and Influent Analytical Results
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- A: Laboratory Analytical Reports
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Executive Summary

ESE Alcohol, Inc., operates an ethanol production facility near Leoti, Kansas. The facility has been in operation since the early 1980s. ESE Alcohol's waste water handling and disposal operations are permitted through the Kansas Department of Health and Environment (KDHE) Bureau of Water. ESE Alcohol performs semi-annual groundwater sampling of monitoring wells and water wells pursuant to their waste water permit.

The semi-annual groundwater monitoring performed by ESE Alcohol also satisfies the requirements of KDHE's Voluntary Cleanup and Property Redevelopment Program (VCPRP). ESE participates in the VCPRP to address groundwater impacts by chloride and arsenic that have resulted from past wastewater operations at the facility. Braun Intertec Corporation (Braun Intertec) has prepared this semi-annual groundwater monitoring report to comply with VCPRP requirements and to support the presentation of monitoring information for their wastewater permit.

Groundwater monitoring activities were performed by Braun Intertec on March 8 and 9, 2017. Field sampling techniques employed were consistent with the methodologies approved by KDHE and required by the wastewater permit. Samples collected were submitted for analysis to Pace Analytical Laboratories in Lenexa, Kansas, a KDHE-certified laboratory. This report presents a description of methodology, a discussion of results, tabulated analytical data, figures, field notes and laboratory reports.

Since the last waste water permit renewal process in 2010, ESE Alcohol has implemented numerous operational improvements to mitigate impact to groundwater by chloride and arsenic (see Section 6, Summary). The effects of the operational improvements on groundwater quality are anticipated to be observed first in key monitoring wells MW-2 and MW-5, which are located slightly downgradient of the wastewater lagoons. The March 2017 groundwater quality data presented herein, combined with recent historical data, continues to indicate a positive decreasing trend in chloride, arsenic, and dissolved organic carbon (DOC) concentrations in the two key monitoring wells. Section 5 of this report presents a thorough discussion of the observed reducing trends.

Overall, the reducing trends are a very positive indication that ESE's operational improvements have been effective. Future reduction of chloride and DOC concentrations, and demobilization of arsenic and other naturally occurring metals in groundwater, are expected to occur sequentially.

KSJ000149
Federal Tracking No.

20150930 | 320

I-UA26-NP01
Kansas Permit No.

STATE OF KANSAS
WATER POLLUTION CONTROL PERMIT APPLICATION
FOR NON-OVERFLOWING WASTEWATER TREATMENT FACILITIES

This is your Wastewater Treatment Facility permit renewal application. This application should be returned to the address shown at the end of this application by March 2, 2015. Please review the information provided here and make corrections / additions / deletions as appropriate.

Pursuant to K.S.A. 65-164 and 65-165, the undersigned representing

Facility Name: ESE ALCOHOL, INC. (WASTEWATER TREATMENT FACILITY)
Facility Address: UNKNOWN- 310 East Highway 96 (1.5 miles east of Leoti on K-96)
Facility City: LEOTI State KS Zip 67861
Owner Name: ESE ALCOHOL, INC
Owner Address: PO BOX 848
Owner City: LEOTI State KS Zip 67861
Contact Name: Duane Berning
Contact Address: PO Box 848
Contact City: Leoti State KS Zip 67861
Contact Phone: (Land Line #) (620) 375-4519 (Cell #) _____
Contact Email: deberning@esealcohol.com

Hereby makes application for a permit for a non-overflowing permit to treat wastewater at
SW¼ OF SECTION 17, TOWNSHIP 18 S, RANGE 36 W, WICHITA COUNTY, KANSAS

1. Service Area:

Population Served _____

Number of Commercial Food Preparation or Food Service Facilities Served

Restaurants _____

Schools _____

Nursing / Rest Homes _____

Number of Industrial Facilities Served

1 - ESE Alcohol

Number of Meat Processing / Locker Plants _____

Describe other facilities that contribute large amounts of wastewater to the wastewater treatment facility.

The wastewater facilities are used exclusively for ESE Alcohol, Inc. operations.

RECEIVED

MAR 3 2015

BUREAU OF WATER

2. Facility Description – Review and provide corrections, additions, and deletions to the facility description.

~~This facility ferments treated seed grain to produce denatured ethanol for fuel use. Mash solids, facility wash water, trailer wash water, boiler blowdown and water softener regenerate are directed to one of six earthen settling basins. Each of the six basins goes through a fill / settling / decanting / drying / solids removal cycle. After the mash solids have settled, mash water is decanted into either the west irrigation cell (formerly the cooling water holding pond) or the east irrigation cell (formerly the mash water pond) for irrigation storage. Solids are periodically removed from the settling basins and either directly applied to farm land for agricultural benefits or stored at a central stockpile location prior to land application. A centrifuge may be used for mash dewatering with the centrate discharged to one of the six mash water settling basins and the separated solids stored at a central stockpile location prior to land application. Cooling tower blowdown, boiler blowdown, water softener reject and waste recharge flows, reverse osmosis concentrate and cleaning flows, facility washdown and seed trailer wash can be directed to the six earthen settling basins and subsequently to the irrigation holding ponds for recycle or irrigation or may be directed to the City of Leoti waste water treatment plant. Irrigation water is drawn from either the east or west irrigation cells. Three sites located north and east of the ethanol plant are irrigated from the east or west irrigation cells. The facility's design capacity is 1,000,000 bushels of seed grain per year. Source of water supply is groundwater from onsite water wells.~~

SEE ATTACHED - REVISED FACILITY DESCRIPTION

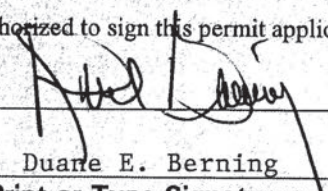
3. Final Disposal method currently used or desired. (Check as many as apply)

Evaporation _____ Irrigation: x Other (Specify) _____

4. Number of Cells Available: 6 settling basins; 1 irrigation cell **Number of Cells Used** 6 settling basins; 1 irrigation cell

I certify under penalty of law that this document and all attachments were prepared and/or reviewed under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather, evaluate and/or review the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering, evaluating and/or reviewing the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

I certify that I am authorized to sign this permit application pursuant to 40 CFR 122.22 as noted below.

Signed: 
Duane E. Berning
Print or Type Signature

Title: President

Date: February 26, 2015

40 CFR 122.22: This application will be signed by the following: (a) in the case of a corporation, by the principal executive officer of at least the level of Vice President; (b) in the case of a partnership, by a general partner, (c) in the case of a sole proprietorship, by the proprietor, and (d) in the case of publicly-owned treatment works, by the official having responsibility for the overall operations of the treatment works.

Return Completed Application to:

**KDHE – Bureau of Water
Technical Services Section
1000 SW Jackson St., Suite 420
Topeka, KS 66612-1367**

**REVISED FACILITY DESCRIPTION FOR ESE ALCOHOL, INC.
KANSAS AGRICULTURAL WATER POLLUTION CONTROL PERMIT APPLICATION
Kansas Permit No.LI-UA26-NP01**

This facility ferments treated seed grain to produce denatured ethanol for fuel use. Mash solids, facility wash water, trailer wash water, boiler blowdown and water softener regenerate are directed to one of six earthen settling basins. Each of the six basins goes through a fill / settling / decanting / drying / solids removal cycle. After the mash solids have settled, mash water is decanted into the west irrigation cell (formerly the cooling water holding pond) for irrigation storage. Solids are periodically removed from the settling basins and either directly applied to farm land for agricultural benefits or stored at a central stockpile location prior to land application. A centrifuge is used for mash dewatering with the centrate discharged to one of the six mash water settling basins and the separated solids stored at a central stockpile location prior to land application. ~~Solids are periodically removed from the settling basins and either directly applied to farm land for agricultural benefits or stored at the central stockpile location prior to land application.~~ Cooling tower blowdown, boiler blowdown, water softener reject and waste recharge flows, reverse osmosis concentrate and cleaning flows, and facility washdown and seed trailer wash may be directed to the City of Leoti waste water treatment plant or can be directed to the six earthen settling basins and subsequently to the irrigation holding ponds for recycle or irrigation. Irrigation water is drawn from either the west irrigation cell. Five sites located north, east and south of the ethanol plant are irrigated from the west irrigation cell. The facility's design capacity is 1,000,000 bushels of seed grain per year. Source of water supply is groundwater from onsite water wells.

(*duplicate above*)
48
11/17/17

KSJ000149
Federal Tracking No.

I-UA26-NP01
Kansas Permit No.

STATE OF KANSAS
WATER POLLUTION CONTROL PERMIT APPLICATION
FOR NON-OVERFLOWING WASTEWATER TREATMENT FACILITIES

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Owner Name: ESE ALCOHOL, INC
Owner Address: PO BOX 848
Owner City: LEOTI State KS Zip 67861
Contact Name: Duane Berning
Contact Address: PO Box 848
Contact City: Leoti State KS Zip 67861
Contact Phone: (Land Line #) (620) 375-4519 (Cell #) _____
Contact Email: debeming@esealcohol.com

Hereby makes application for a permit for a non-overflowing permit to treat wastewater at
SW¼ OF SECTION 17, TOWNSHIP 18 S, RANGE 36 W, WICHITA COUNTY, KANSAS

1. Service Area:

Population Served _____
Number of Commercial Food Preparation or Food Service Facilities Served
Restaurants _____
Schools _____
Nursing / Rest Homes _____
Number of Industrial Facilities Served 1 - ESE Alcohol
Number of Meat Processing / Locker Plants _____

Describe other facilities that contribute large amounts of wastewater to the wastewater treatment facility.
The wastewater facilities are used exclusively for ESE Alcohol, Inc. operations.

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FEB 27 2015

BUREAU OF WATER
Attachment 8 Page 30 of 33

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SEE ATTACHED - REVISED FACILITY DESCRIPTION

3. Final Disposal method currently used or desired. (Check as many as apply)

Evaporation _____ Irrigation: x Other (Specify) _____

4. Number of Cells Available: 6 settling basins; 1 irrigation cell Number of Cells Used 6 settling basins; 1 irrigation cell

I certify under penalty of law that this document and all attachments were prepared and/or reviewed under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather, evaluate and/or review the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering, evaluating and/or reviewing the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

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Signed: 

Title: President

Duane E. Berning

Print or Type Signature

Date: February 26, 2015

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Return Completed Application to:

KDHE – Bureau of Water
Technical Services Section
1000 SW Jackson St., Suite 420
Topeka, KS 66612-1367

**REVISED FACILITY DESCRIPTION FOR ESE ALCOHOL, INC.
KANSAS AGRICULTURAL WATER POLLUTION CONTROL PERMIT APPLICATION
Kansas Permit No. LI-UA26-NP01**

This facility ferments treated seed grain to produce denatured ethanol for fuel use. Mash solids, facility wash water, trailer wash water, boiler blowdown and water softener regenerate are directed to one of six earthen settling basins. Each of the six basins goes through a fill / settling / decanting / drying / solids removal cycle. After the mash solids have settled, mash water is decanted into the west irrigation cell (formerly the cooling water holding pond) for irrigation storage. Solids are periodically removed from the settling basins and either directly applied to farm land for agricultural benefits or stored at a central stockpile location prior to land application. A centrifuge is used for mash dewatering with the centrate discharged to one of the six mash water settling basins and the separated solids stored at a central stockpile location prior to land application. Solids are periodically removed from the settling basins and either directly applied to farm land for agricultural benefits or stored at the central stockpile location prior to land application. Cooling tower blowdown, boiler blowdown, water softener reject and waste recharge flows, reverse osmosis concentrate and cleaning flows, and facility washdown and seed trailer wash may be directed to the City of Leoti waste water treatment plant or can be directed to the six earthen settling basins and subsequently to the irrigation holding ponds for recycle or irrigation. Irrigation water is drawn from either the west irrigation cell. Five sites located north, east and south of the ethanol plant are irrigated from the west irrigation cell. The facility's design capacity is 1,000,000 bushels of seed grain per year. Source of water supply is groundwater from onsite water wells.



310 East Hwy 96 ~ PO Box 848
Leoti, KS 67861

February 26, 2015

KDH&E – Bureau of Water
C/O Shelly Shores-Miller
Technical Services Section
1000 SW Jackson St., Suite 420
Topeka, Kansas 66612-1367

RE: Kansas Water Pollution Control Permit No. I-UA26-NP01

Dear Shelly,

With the aid of Franky Arnwine, P.G., we have reviewed the permit re-newel application received from you dated January 22, 2015. Franky is the Senior Project Manager of Blackstone Environmental, Inc. located in Topeka, has worked with ESE for a number of years on compliance issues relating to KDH&E, and will continue to do so in the future. As far as corrections, deletions, and additions the facility description was revised to more accurately reflect the current ESE description and is printed on a separate page.

If you have questions relating to this application please contact me (contact info. below) or Franky Arnwine @ farnwine@blackstone-env.com (785) 783-8663.

Sincerely yours,

Duane Berning, President

DEB
Enclosure

Phone: 620-375-4519
Fax: 620-375-4520
Email: deberning@esealcohol.com

Water Well #A is the supply well for the water softeners, the RO system, and the boilers. This well is not part of the monitoring program and therefore is not tested. The location of Water Well #A is between Water Well #1 and Water Well #5 which are tested. Water Well #1 is located downgradient to the East approximately 100 feet from Water Well #A which is part of the monitoring program. Included are the last two analytical testing results for Water Well #1. The first was collected on 09-24-19; the second was collected on 09-04-20. Water Well #5 is located approximately 175 feet West and slightly North of Water Well #A. Included also are the last two analytical testing results for Water Well #5. The first was collected on 09-25-19; the second was collected on 09-02-20. The results would be representative of water pumped from Water Well #A.

ANALYTICAL RESULTS

Project: ESE ALCOHOL SEMI-ANNUAL GW
Pace Project No.: 60347617

Sample: WW-1		Lab ID: 60347617008		Collected: 09/02/20 15:45		Received: 09/04/20 16:00		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City							
Aluminum	ND	ug/L	75.0	1	09/13/20 14:25	09/14/20 16:10	7429-90-5		
Iron	308	ug/L	50.0	1	09/13/20 14:25	09/14/20 16:10	7439-89-6		
Manganese	148	ug/L	5.0	1	09/13/20 14:25	09/14/20 16:10	7439-96-5		
Sodium	30000	ug/L	500	1	09/13/20 14:25	09/14/20 16:10	7440-23-5		
200.7 Metals, Dissolved		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City							
Barium, Dissolved	116	ug/L	5.0	1	09/17/20 15:05	09/19/20 18:41	7440-39-3		
Iron, Dissolved	238	ug/L	50.0	1	09/17/20 15:05	09/19/20 18:41	7439-89-6		
Lead, Dissolved	ND	ug/L	10.0	1	09/17/20 15:05	09/19/20 18:41	7439-92-1		
Nickel, Dissolved	ND	ug/L	5.0	1	09/17/20 15:05	09/19/20 18:41	7440-02-0		
Zinc, Dissolved	ND	ug/L	50.0	1	09/17/20 15:05	09/19/20 18:41	7440-66-6		
Selenium, Dissolved	ND	ug/L	15.0	1	09/17/20 15:05	09/19/20 18:41	7782-49-2		
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Kansas City							
Arsenic	4.1	ug/L	1.0	1	09/14/20 13:55	09/21/20 11:15	7440-38-2		
200.8 MET ICPMS, Dissolved		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Kansas City							
Arsenic, Dissolved	3.7	ug/L	1.0	1	09/18/20 12:15	09/21/20 11:42	7440-38-2		
4500S2F Sulfide, Iodometric		Analytical Method: SM 4500-S-2 F Pace Analytical Services - Kansas City							
Sulfide	ND	mg/L	1.0	1		09/09/20 18:06	18496-25-8		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City							
Chloride	47.5	mg/L	5.0	5		09/11/20 21:20	16887-00-6		
Sulfate	60.1	mg/L	5.0	5		09/11/20 21:20	14808-79-8		
353.2 Nitrogen, NO2/NO3 pres.		Analytical Method: EPA 353.2 Pace Analytical Services - Kansas City							
Nitrogen, NO2 plus NO3	3.7	mg/L	0.10	1		09/10/20 10:51			
365.4 Total Phosphorus		Analytical Method: EPA 365.4 Preparation Method: EPA 365.4 Pace Analytical Services - Kansas City							
Phosphorus	ND	mg/L	0.10	1	09/12/20 11:48	09/15/20 10:04	7723-14-0		
5310C Dissolved Organic Carbon		Analytical Method: SM 5310C Pace Analytical Services - Kansas City							
Dissolved Organic Carbon	1.2	mg/L	1.0	1		09/14/20 12:46			

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: ESE ALCOHOL SEMI-ANNUAL GW

Pace Project No.: 60316263

Sample: MW-1		Lab ID: 60316263001	Collected: 09/24/19 14:25	Received: 09/26/19 15:40	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Aluminum	ND	ug/L	75.0	1	10/03/19 10:50	10/04/19 14:32	7429-90-5	
Iron	89.8	ug/L	50.0	1	10/03/19 10:50	10/04/19 14:32	7439-89-6	
Manganese	13.5	ug/L	5.0	1	10/03/19 10:50	10/04/19 14:32	7439-96-5	
Sodium	59700	ug/L	500	1	10/03/19 10:50	10/04/19 14:32	7440-23-5	
200.7 Metals, Dissolved		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Dissolved	123	ug/L	5.0	1	10/03/19 10:50	10/04/19 14:59	7440-39-3	
Iron, Dissolved	ND	ug/L	50.0	1	10/03/19 10:50	10/04/19 14:59	7439-89-6	
Lead, Dissolved	ND	ug/L	10.0	1	10/03/19 10:50	10/04/19 14:59	7439-92-1	
Nickel, Dissolved	ND	ug/L	5.0	1	10/03/19 10:50	10/04/19 14:59	7440-02-0	
Zinc, Dissolved	ND	ug/L	50.0	1	10/03/19 10:50	10/04/19 14:59	7440-66-6	
Selenium, Dissolved	ND	ug/L	15.0	1	10/03/19 10:50	10/04/19 14:59	7782-49-2	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Arsenic	2.7	ug/L	1.0	1	10/03/19 12:50	10/04/19 12:51	7440-38-2	
200.8 MET ICPMS, Dissolved		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Arsenic, Dissolved	2.6	ug/L	1.0	1	10/03/19 12:50	10/04/19 13:16	7440-38-2	
4500S2F Sulfide, Iodometric		Analytical Method: SM 4500-S-2 F						
Sulfide	1.0	mg/L	1.0	1		10/01/19 15:42	18496-25-8	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	162	mg/L	10.0	10		10/03/19 17:55	16887-00-6	M1
Sulfate	90.8	mg/L	10.0	10		10/03/19 17:55	14808-79-8	M1
353.2 Nitrogen, NO2/NO3 pres.		Analytical Method: EPA 353.2						
Nitrogen, NO2 plus NO3	9.5	mg/L	0.50	5		10/01/19 13:46		
365.4 Total Phosphorus		Analytical Method: EPA 365.4 Preparation Method: EPA 365.4						
Phosphorus	ND	mg/L	0.10	1	10/07/19 08:56	10/09/19 14:15	7723-14-0	
5310C Dissolved Organic Carbon		Analytical Method: SM 5310C						
Dissolved Organic Carbon	ND	mg/L	1.0	1		10/08/19 21:36		

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ANALYTICAL RESULTS

Project: ESE ALCOHOL SEMI-ANNUAL GW
Pace Project No.: 60316263

Sample: WW-5		Lab ID: 60316263011	Collected: 09/25/19 07:39	Received: 09/26/19 15:40	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Aluminum	ND	ug/L	75.0	1	10/03/19 10:50	10/04/19 15:00	7429-90-5	
Iron	ND	ug/L	50.0	1	10/03/19 10:50	10/04/19 15:00	7439-89-6	
Manganese	ND	ug/L	5.0	1	10/03/19 10:50	10/04/19 15:00	7439-96-5	
Sodium	63200	ug/L	500	1	10/03/19 10:50	10/04/19 15:00	7440-23-5	
200.7 Metals, Dissolved		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Dissolved	99.7	ug/L	5.0	1	10/03/19 10:50	10/04/19 15:36	7440-39-3	
Iron, Dissolved	ND	ug/L	50.0	1	10/03/19 10:50	10/04/19 15:36	7439-89-6	
Lead, Dissolved	ND	ug/L	10.0	1	10/03/19 10:50	10/04/19 15:36	7439-92-1	
Nickel, Dissolved	ND	ug/L	5.0	1	10/03/19 10:50	10/04/19 15:36	7440-02-0	
Zinc, Dissolved	ND	ug/L	50.0	1	10/03/19 10:50	10/04/19 15:36	7440-66-6	
Selenium, Dissolved	ND	ug/L	15.0	1	10/03/19 10:50	10/04/19 15:36	7782-49-2	
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Arsenic	2.5	ug/L	1.0	1	10/03/19 12:50	10/04/19 13:06	7440-38-2	
200.8 MET ICPMS, Dissolved		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Arsenic, Dissolved	2.4	ug/L	1.0	1	10/03/19 12:50	10/04/19 13:31	7440-38-2	
4500S2F Sulfide, Iodometric		Analytical Method: SM 4500-S-2 F						
Sulfide	ND	mg/L	1.0	1		10/01/19 16:31	18496-25-8	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Chloride	130	mg/L	10.0	10		10/03/19 23:44	16887-00-6	
Sulfate	97.7	mg/L	10.0	10		10/03/19 23:44	14808-79-8	
353.2 Nitrogen, NO2/NO3 pres.		Analytical Method: EPA 353.2						
Nitrogen, NO2 plus NO3	9.7	mg/L	0.50	5		10/01/19 14:22		
365.4 Total Phosphorus		Analytical Method: EPA 365.4 Preparation Method: EPA 365.4						
Phosphorus	ND	mg/L	0.10	1	10/07/19 08:56	10/09/19 14:29	7723-14-0	

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ANALYTICAL RESULTS

Project: ESE ALCOHOL SEMI-ANNUAL GW

Pace Project No.: 60347617

Sample: WW-5		Lab ID: 60347617011		Collected: 09/02/20 15:12		Received: 09/04/20 16:00		Matrix: Water	
Parameters		Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City							
Aluminum	95.3	ug/L	75.0	1	09/13/20 14:25	09/14/20 16:28	7429-90-5		
Iron	ND	ug/L	50.0	1	09/13/20 14:25	09/14/20 16:28	7439-89-6		
Manganese	ND	ug/L	5.0	1	09/13/20 14:25	09/14/20 16:28	7439-96-5		
Sodium	68100	ug/L	500	1	09/13/20 14:25	09/14/20 16:28	7440-23-5		
200.7 Metals, Dissolved		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Kansas City							
Barium, Dissolved	104	ug/L	5.0	1	09/17/20 15:05	09/19/20 18:49	7440-39-3		
Iron, Dissolved	ND	ug/L	50.0	1	09/17/20 15:05	09/19/20 18:49	7439-89-6		
Lead, Dissolved	ND	ug/L	10.0	1	09/17/20 15:05	09/19/20 18:49	7439-92-1		
Nickel, Dissolved	ND	ug/L	5.0	1	09/17/20 15:05	09/19/20 18:49	7440-02-0		
Zinc, Dissolved	ND	ug/L	50.0	1	09/17/20 15:05	09/19/20 18:49	7440-66-6		
Selenium, Dissolved	ND	ug/L	15.0	1	09/17/20 15:05	09/19/20 18:49	7782-49-2		
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Kansas City							
Arsenic	2.7	ug/L	1.0	1	09/14/20 13:55	09/21/20 11:19	7440-38-2		
200.8 MET ICPMS, Dissolved		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Kansas City							
Arsenic, Dissolved	2.8	ug/L	1.0	1	09/18/20 12:15	09/21/20 11:45	7440-38-2		D9
4500S2F Sulfide, Iodometric		Analytical Method: SM 4500-S-2 F Pace Analytical Services - Kansas City							
Sulfide	ND	mg/L	1.0	1		09/09/20 18:15	18496-25-8		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0 Pace Analytical Services - Kansas City							
Chloride	148	mg/L	10.0	10		09/11/20 22:21	16887-00-6		
Sulfate	105	mg/L	10.0	10		09/11/20 22:21	14808-79-8		
353.2 Nitrogen, NO2/NO3 pres.		Analytical Method: EPA 353.2 Pace Analytical Services - Kansas City							
Nitrogen, NO2 plus NO3	9.7	mg/L	0.50	5		09/10/20 11:21			
365.4 Total Phosphorus		Analytical Method: EPA 365.4 Preparation Method: EPA 365.4 Pace Analytical Services - Kansas City							
Phosphorus	ND	mg/L	0.10	1	09/12/20 11:48	09/15/20 10:08	7723-14-0		
5310C Dissolved Organic Carbon		Analytical Method: SM 5310C Pace Analytical Services - Kansas City							
Dissolved Organic Carbon	ND	mg/L	1.0	1		09/14/20 13:26			

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PHILIPS

SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Revision date : 2018-08-28

Publication date : 2018-08-28

Version number : 1.1

SECTION 1: Identification of the substance/mixture and of the company/undertaking

(a) Product identifier

SDS : 33602

Lamp Material Data Sheet code (LMDS) : TL8-13100A

Supplier : PHILIPS LIGHTING, NORTH AMERICA
200 Franklin Square Drive
Somerset, NJ 08873-4186

Tradename : PHILIPS T8 FLUORESCENT LAMPS - ALL TYPES

(b) Other means of identification : All ALTO, non-ALTO, Standard, HO, Circular, U-Bent and TuffGuard All lengths, coatings, wattages

(c) Relevant identified uses of the substance or mixture and uses advised against

General description : Fluorescent Lamp

Use : Various

Uses advised against : No data available

(d) Details of the supplier of the safety data sheet

Supplier safety data sheet : Philips Electronics Nederland B.V., Philips Environment & Safety, High Tech Campus 37, 5656 AE Eindhoven, Tel. +31 (0)40 27 41 645

Responsible department : dangerous.goods@philips.com

(e) Emergency telephone number

Emergency telephone number:

CHEMTREC

: +1 (0)800-424-9300

Classification in accordance with 29 CFR 1910.1200

Not classified.

This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200). This product is an article and as such does not require an SDS per the OSHA hazard communication standard.

(b) Label elements

Labelling in accordance with 29 CFR 1910.1200

Label : not applicable.

Remarks on labelling: none

(c) Other hazards

none.

SECTION 3: Composition/Information on ingredients

Component	CAS number
GLASS	65997-17-3
FLUORESCENT POWDER	-
MERCURY	7439-97-6
POLY(ETHYLENE TEREPHTHALATE)	25038-59-9

Remark: The product contains: 1.7 - 3.5 mg Mercury

SECTION 4: First aid measures

(a) Description of first aid measures

Skin : Not applicable.
Ingestion : Not applicable.
Inhalation : Not applicable.
Eyes : Not applicable.

(b) Most important symptoms and effects, both acute and delayed

Skin local : Under normal circumstances not applicable.
general : Under normal circumstances not applicable
Ingestion local : Under normal circumstances not applicable
general : Under normal circumstances not applicable
Inhalation local : Under normal circumstances not applicable

Remarks symptoms : None

(c) Indication of any immediate medical attention and special treatment needed

None

SECTION 5: Firefighting measures

(a) Extinguishing media

Suitable fire-extinguisher determined by surrounding.

Unsuitable fire-extinguisher not traceable.

(b) Special hazards arising from the substance or mixture

Hazardous decomposition products in fire: Silicon dioxide, Mercury oxides, metal oxide

(c) Advice for firefighters

In the event of fire, wear protective clothing and use breathing apparatus that is independent of the ambient air.

SECTION 6: Accidental release measures

(a) Personal precautions, protective equipment and emergency procedures

Personal precautions

In case of broken articles, use protective equipment. Evacuate area.

For non-emergency personnel

Protective equipment

Wear protective gloves/protective clothing/eye protection/face protection.

Emergency procedure

Ventilate affected area.

powder or mercury vapor. Scoop up glass fragments using stiff paper or cardboard and sticky tape. Place cleanup materials in a sealable container.

Other information

No information available.

SECTION 7: Handling and storage

(a) Precautions for safe handling

Local exhausting : Under normal circumstances not applicable.

(b) Conditions for safe storage, including any incompatibilities

Storage conditions : No special precautions.

SECTION 8: Exposure controls/personal protection

(a) Control parameters

Exposure limits :

applicable to: United States of America (25 °C; 1013 mbar)

TWA(8 hours):	0.025 mg/m3	S	MERCURY-	[according to ACGIH]
TWA (8 hours):	0.1 mg/m3	C	MERCURY-	[according to NIOSH]
TWA (8 hours)	0.1 mg/10m³	C	MERCURY –	[according to OSHA PEL]

C=Ceiling; S=Skin

Remarks exposure limits : none

(b) Appropriate engineering controls: Under normal circumstances not applicable

(c) Exposure controls

Advised personal protection:

Hande: Under normal circumstances not applicable

Odor	: odorless	Source	: Chemicalcards
Odor threshold (20°C; 1013 mbar)	: not traceable	Source	: Easi View
pH	: not applicable		
Melting point/freezing point	: not traceable		
Boiling point/range	: not traceable		
Flash point/range	: not applicable		
Evaporation rate/range	: not applicable		
Vapor rate/range	: not applicable		
Flammability (solid, gas)	: data not available		
Upper/lower flammability or explosive limit	: not applicable		
Vapor pressure	: not applicable		
Vapor density	: not applicable		
Density	: not traceable		
Solubility in water	: not applicable		
Log Po/w:	4.5 MERCURY		
	0.54 POLY(ETHYLENE TEREPHTHALATE)		
Auto-ignition temperature	: not applicable		
Decomposition temperature	: not traceable		
Viscosity	: not applicable		
Dust explosions possible in air	: not applicable		
Oxidizing properties	: no		

SECTION 10: Stability and reactivity

(a) Reactivity

Not applicable.

(b) Chemical stability

The substance or mixture is stable under normal conditions.

Hazardous decomposition products at heating: none

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute oral toxicity

No data available.

Acute dermal toxicity

No data available.

Acute inhalation toxicity

No data available.

Skin corrosion/irritation

The substance or mixture is not classified for skin corrosion/-irritation.

Serious eye damage/irritation

The substance or mixture is not classified for serious eye damage/irritation.

Respiratory or skin sensitization

The substance or mixture is not classified for respiratory or skin sensitization.

Germ cell mutagenicity

The substance or mixture is not classified for germ cell mutagenicity.

Carcinogenicity

IARC: Group 3: Not classifiable as to its carcinogenicity to humans (Mercury)

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity

The substance or mixture is not classified for reproductive toxicity.

Specific target organ toxicity-single exposure

The substance or mixture is not classified for specific target organ toxicity-single exposure.

general	:	Not applicable.
Eyes	:	Not applicable.
Remarks symptoms	:	None

SECTION 12: Ecological information			
(a) Toxicity			
Ecotoxicity			
LC-50: 0.004 mg/l/96H (Fish)	MERCURY		Source : Easi View
EC-50: 0.0205 mg/l/48H (Daphnia)	MERCURY		Source : IFA- Gestis
IC-50: 0.3 mg/l/72H (Algae)	MERCURY		Source : Easi View
(b) Persistence and degradability			
Biological oxygen demand:		not applicable	
Chemical oxygen demand:		not applicable	
Degradability:		not applicable	
(c) Bioaccumulative potential			
Bioconcentration factor (BCF) : >2500	MERCURY		
(d) Mobility in soil			
Henry Constant	: 1.46E-1 atm m3/mol	POLY(ETHYLENE TEREPHTHALATE)	Source: Easi View
(e) Other adverse effects			
Remarks on eco-toxicity:	none		

SECTION 13: Disposal considerations	
Waste treatment methods	
Remainder material or uncleaned empty packaging's have to be incinerated in a proper installation or dunned on an approved landfill in accordance with local and national	

- (b) **UN proper shipping name**
DOT/49CFR : none
IMDG/IMO : none
IATA/ICAO : MERCURY CONTAINED IN MANUFACTURED ARTICLES
- (c) **Transport hazard class(es)**
DOT/49CFR : none IMDG/IMO : none IATA/ICAO : 8 (6.1)
- (d) **Packing group**
DOT/49CFR : none IMDG/IMO : none IATA/ICAO : none
- (e) **Environmental hazards**
Marine pollutant : no
- (f) **Special precautions for user**
Hazard identification number (ADR/RID): none
EmS (IMDG/IMO) : none
- (g) **Transport in bulk according to Annex II of Marpol and the IBC Code**
Data not available.

SECTION 15: Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture

US Federal regulations

- SARA 313: Mercury
- SARA 311/312: not applicable.
- HMIS Classification: not applicable.
- U.S. Clean Water Act Section 307 – Toxic Pollutants: Mercury

A key or legend to abbreviations and acronyms used in the safety data sheet

GHS	Globally Harmonized System of Classification and Labelling of Chemicals
CAS	Chemical Abstracts Service
TGG = TWA	Time Weighted Average
LEL	Lower Explosive Limit
UEL	Upper Explosive Limit
NTP	National Toxicology Program
KHC	Known Human Carcinogen
RAHC	Reasonably Anticipated Human Carcinogen
IARC	International Agency for Research on Cancer
OSHA	Occupational Safety & Health Administration
DOT	US Department of Transportation
RID	Règlement concernant le transport international ferroviaire des marchandises dangereuses
UN	United Nations
IMDG	International Maritime Dangerous Goods
IMO	International Maritime Organization
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
EmS	Emergency Schedule
SARA	Superfund Amendments and Reauthorization Act

* Point to alterations with regard to the previous version.

The information provided in this Safety Data Sheet is believed to be correct as of the date issued. Philips Electronics Nederland B.V. makes no warranty as to its contents, nor as to its fitness for any particular purpose or use.

PRODUCT SAFETY DATA SHEET

PSDS No. 1.1

FLUORESCENT LAMPS



Sylvania brand Fluorescent Lamps, manufactured by OSRAM / OSRAM SYLVANIA, are exempted from the requirements of the OSHA Hazard Communication Standard (29 CFR 1910.1200) because they are "articles." The following information is provided by OSRAM SYLVANIA as a courtesy to its customers.

I. PRODUCT IDENTIFICATION

Trade Name:

Sylvania Fluorescent Lamps

- This data sheet covers Sylvania linear "White" (Cool White, Warm White, Daylight, etc; 700, 800, 900 series triphosphor) standard, "Sylvania ECO" brand, and Safeline® linear, T12 & Osron Curvalume® (6" spacing), and T9 Circulume fluorescent lamps for general lighting.
- This data sheet does not cover compact fluorescent®, Pentron® (T5), plant, aquarium/vivarium, photocopy, germicidal, blacklight, or any colored or other special application fluorescent lamps.
- Safeline lamps are encased in a Polyethylene Terephthalate (PET) heat shrinkable tubing manufactured by EncapSulite International Inc., Stafford, TX.
- See PSDS No. 1.1.5 for Compact Fluorescent Lamps.
- See PSDS No. 1.1.8 for Pentron Fluorescent Lamps.

Manufacturer: OSRAM SYLVANIA

100 Endicott Street
Danvers, MA 01923

Phone: (978) 777-1900

II. HAZARDOUS INGREDIENTS:

THERE ARE NO KNOWN HEALTH HAZARDS FROM EXPOSURE TO LAMPS THAT ARE INTACT.

If the lamp is broken, the following materials may be released:

Chemical Name	CAS Number	% by Wt.	ACGIH (TLV)	OSHA (PEL)
Glass (soda-lime)	-----	75-95	10 ⁽²⁾	15 ⁽²⁾
Mercury ^(1,4)	7439-97-6	0.002-0.02	0.025	0.1 Ceiling
Lead Oxide ^(1,3,4)	1317-36-8	0.2-2.0	0.05	0.05
Aluminum Oxide	001-344-281	0-2.0	10 ⁽²⁾	15 ⁽²⁾
Fluorescent Phosphor and cathodes may contain:	-----	0.5-3.0	10 ⁽²⁾	15 ⁽²⁾
Fluoride (as F)	-----	0-0.1	2.5	2.5
Manganese ⁽³⁾ (as dust)	7439-96-5	0-0.1	0.2	5.0 Ceiling
Tin ⁽³⁾ (as dust)	7440-31-5	0-0.1	2.0	2.0
Yttrium ⁽³⁾ (as dust)	7440-65-5	0-0.5	1.0	1.0
Barium ⁽³⁾ (as dust)	7440-39-3	<0.1	0.5	0.5
Tungsten ⁽³⁾ (as dust)	7440-33-7	<0.1	1	15 ⁽²⁾
Strontium ⁽³⁾ (as dust)	7440-24-6	0-0.1	10 ⁽²⁾	15 ⁽²⁾
Magnesium ⁽³⁾ (as dust)	7439-95-4	0-0.1	10 ⁽²⁾	15 ⁽²⁾
Calcium ⁽³⁾ (as dust)	-----	0-0.1	10 ⁽²⁾	15 ⁽²⁾
Antimony ⁽³⁾ (as dust)	7440-36-0	0-0.1	0.5	0.5
Zinc ⁽³⁾ (as dust)	7440-66-6	0-0.1	10 ⁽²⁾	15 ⁽²⁾
Europium ⁽³⁾ (as dust)	7440-53-1	0-0.1	10 ⁽²⁾	15 ⁽²⁾
Cerium ⁽³⁾ (as dust)	7440-45-1	0-0.1	10 ⁽²⁾	15 ⁽²⁾
Lanthanum ⁽³⁾ (as dust)	7439-91-0	0-0.1	10 ⁽²⁾	15 ⁽²⁾
Terbium ⁽³⁾ (as dust)	7440-27-9	0-0.1	10 ⁽²⁾	15 ⁽²⁾
Aluminum ⁽³⁾ (as dust)	7429-90-5	0-0.1	10 ⁽²⁾	15 ⁽²⁾
6" Curvalume® U-shaped Lamps contain a center support strap consisting of all, or a portion of the following:	-----	-02.9	Within permissible exposure limits	
Carbonic Acid, Polymer with 4,4'-(1-methylethylidene)bis (2,6-dibromophenol) and 4,4'-(1-methylethylidene)bis [phenol]	32844-27-2	-----		

III. PHYSICAL PROPERTIES : Not applicable to intact lamp.

IV. FIRE & EXPLOSION HAZARDS

Flammability: Non-combustible.

Fire Extinguishing Materials: Use extinguishing agents suitable for surrounding fire.

Special Firefighting Procedure: Use a self-contained breathing apparatus to prevent inhalation of dust and/or fumes that may be generated from broken lamps during firefighting activities.

Unusual Fire and Explosion Hazards: When exposed to high temperature, toxic fumes may be released from broken lamps.

V. HEALTH HAZARDS

THERE ARE NO KNOWN HEALTH HAZARDS FROM EXPOSURE TO LAMPS THAT ARE INTACT. No adverse effects are expected from occasional exposure to broken lamps. As a matter of good practice, avoid prolonged or frequent exposure to broken lamps unless there is adequate ventilation. The major hazard from broken lamps is the possibility of sustaining glass cuts.

NIOSH/OSHA Occupational Health Guidelines for Chemical Hazards and/or NIOSH Pocket Guide to Chemical Hazards lists the following effects of overexposure to the chemicals/materials tabulated below when they are inhaled, ingested, or contacted with skin or eye:

Mercury - Contact, inhalation, or ingestion may cause one or more of the following symptoms: eye irritation, skin irritation, cough, chest pain, dyspnea, bronchitis, pneumonitis, tremor, insomnia, irritability, indecision, headache, fatigue, weakness, stomatitis, salivation, GI tract disturbance, anorexia, weight loss, and proteinuria.

Lead - Contact, ingestion, or inhalation may cause one or more of the following symptoms: weakness, lassitude, insomnia, facial pallor, pal eye, anorexia, weight loss, malnutrition, constipation, abdominal pain, colic, anemia, gingival lead line, tremor, wrist paralysis, ankles paralysis, encephalopathy, kidney disease, eye irritation, and hypotension.

Glass - Glass dust is considered to be physiologically inert and as such has an OSHA exposure limit of 15 mg/M³ for total dust and 5 mg/M³ for respirable dust. The ACGIH TLVs for particulates not otherwise classified are 10 mg/M³ for total dust and 3 mg/M³ for respirable dust.

Tin - Contact, ingestion, or inhalation may cause one or more of the following symptoms: eye irritation, skin irritation, and respiratory system irritation.

Manganese - Contact, ingestion, or inhalation may cause one or more of the following symptoms: Parkinson's, asthenia, insomnia, mental confusion, metal fume fever, dry throat, cough, chest tightness, dyspnea, rales, flu-like fever, low-back pain, vomiting, malaise, fatigue, and kidney damage.

Fluoride - Fluoride-containing dust may cause irritation of the eyes and respiratory tract. Swallowing fluoride may cause a salty or soapy taste, vomiting, abdominal pain, diarrhea, shortness of breath, difficulty in speaking, thirst, weakness of the pulse, disturbed color vision, muscular weakness, convulsions, loss of consciousness, and death. Kidney injury and bleeding from the stomach may occur. Repeated exposure to fluoride may cause excessive calcification of the bone and calcification of ligaments of the ribs, pelvis, and spinal column. Stiffness and limitation of motion may result. Repeated or prolonged exposure of the skin to fluoride-containing dust may cause a skin rash.

Aluminum Oxide (Alumina) - Alumina is a non-toxic material. Sharp-edged particles can irritate the eyes, skin, and respiratory system.

Phosphor - Phosphor dust is considered to be physiologically inert and as such has an OSHA exposure limit of 15 mg/cubic meter for total dust and 5 mg/cubic meter for respirable dust.

Yttrium - Contact, ingestion, or inhalation may cause one or more of the following symptoms: eye irritation, pulmonary irritation, and possible liver damage.

Barium (soluble compounds) - Contact, ingestion, or inhalation may cause one or more of the following symptoms: eye irritation, skin irritation, upper respiratory system irritation, skin burns, gastroenteritis, muscle spasm, slow pulse, extrasystole, and hypokalemia.

EMERGENCY AND FIRST AID PROCEDURES

Glass Cuts: Perform normal first aid procedures. Seek medical attention as required.

Inhalation: If discomfort, irritation or symptoms of pulmonary involvement develop, remove from exposure and seek medical attention.

Ingestion: In the unlikely event of ingestion of a large quantity of material, seek medical attention.

Contact, Skin: Thoroughly wash affected area with mild soap or detergent and water and prevent further contact. Seek medical attention if irritation occurs.

Contact, Eye: Wash eyes, including under eyelids, immediately with copious amounts of water for 15 minutes. Seek medical attention.

CARCINOGENIC ASSESSMENT (NTP ANNUAL REPORT, IARC MONOGRAPHS, OTHER): None

VI. REACTIVITY DATA

Stability: Stable

Conditions to avoid: None for intact lamps.

Incompatibility (materials to avoid): None for intact lamps.

Hazardous Decomposition Products (including combustion products): None for intact lamps.

Hazardous Polymerization Products: Will not occur.

VII. PROCEDURES FOR DISPOSAL OF LAMPS

OSRAM SYLVANIA recommends that all mercury-containing lamps be recycled. For a list of lamp recyclers and to obtain state regulatory disposal information, log onto www.lamprecycle.org.

If lamps are broken, ventilate area where breakage occurred. Clean-up with a special mercury vacuum cleaner (not a standard vacuum cleaner) or other suitable means that avoids dust and mercury vapor generation. Take usual precautions for collection of broken glass. Clean-up requires special care due to mercury droplet proliferation. Place materials in closed containers to avoid generating dust.

It is the responsibility of the waste generator to ensure proper classification and disposal of waste products. To that end, TCLP tests should be conducted on all waste products, including this one, to determine the ultimate disposition in accordance with applicable federal, state and local regulations. Some states have specific disposal requirements for lamps containing mercury.

Lamps which pass the EPA's TCLP test are considered non-hazardous waste in most states. Always review your local and state regulations which can vary. Based upon the NEMA* Standard LL 1 (*Procedures for Linear Fluorescent Lamp Sample Preparation and the TCLP*) testing protocol, ECOLOGIC® lamps, marked "ECO," pass the TCLP test.

*NEMA (National Electrical Manufacturers Association) standard may be obtained from NEMA, 1300 North 17th Street, Suite 1847, Rosslyn, VA 22209.

VIII. SPECIAL HANDLING INFORMATION - FOR BROKEN LAMPS

Ventilation: Use adequate general and local exhaust ventilation to maintain exposure levels below the PEL or TLV limits. If such ventilation is unavailable, use respirators as specified below.



SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Revision date
Publication date

: 2019-01-25
: 2018-08-28

Version number : 1.1

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Product identifier

SDS : 33615
Lamp Material Data Sheet code (LMDS) : MV-09100C

* Supplier

: Signify North America Corporation
200 Franklin Square Drive
Somerset, NJ 08873-4186

Tradename

: PHILIPS MERCURY VAPOR LAMPS – All Wattages

Other means of identification

: All Standard Mercury Vapor Lamps – Medium and Mogul Base
H33, H36, H37, H38, H39, H43, H44, H45, H46, SAH Types

Relevant identified uses of the substance or mixture and uses advised against

General description : Mercury Vapor Lamp
Recommended Use : Various
Uses advised against : No data available

Details of the supplier of the safety data sheet

Supplier safety data sheet : Philips Electronics Nederland B.V., Philips Environment & Safety, High
Tech Campus 37, 5656 AE Eindhoven, Tel. +31 (0)40 27 41 645
Responsible department : hazcom@philips.com

Emergency telephone number

Emergency telephone number:
CHEMTREC : +1 (0)800-424-9300

SECTION 2: Hazards identification

Classification of the substance or mixture

Classification in accordance with 29 CFR 1910.1200

Not classified.

This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200). This product is an article and as such does not require an SDS per the OSHA hazard communication standard.

Label elements

Remarks on labelling: none

Other hazards

none.

SECTION 3: Composition/information on ingredients	
Component	CAS number
GLAS	-
FLUORESCENT POWDER	-
TIN	7440-31-5
INDIUM	7440-74-6
MERCURY	7439-97-6
BISMUTH	7440-69-9

Remark: The product contains: 13.7 - 72 mg Mercury

SECTION 4: First aid measures	
Description of first aid measures	
Skin	: Not applicable.
Ingestion	: Not applicable.
Inhalation	: Not applicable.
Eyes	: Not applicable.
Most important symptoms and effects, both acute and delayed	
Skin	local : Under normal circumstances not applicable.
	general : Under normal circumstances not applicable
Ingestion	local : Under normal circumstances not applicable
	general : Under normal circumstances not applicable
Inhalation	local : Under normal circumstances not applicable
	general : Under normal circumstances not applicable
Eyes	local : Under normal circumstances not applicable
Remarks symptoms	: None
Indication of any immediate medical attention and special treatment needed	
None	

SECTION 5: Firefighting measures	
Extinguishing media	
Suitable fire-extinguisher	



Special hazards arising from the substance or mixture

Hazardous decomposition products in fire: Tin oxide, Mercury oxides, metal oxide

Advice for firefighters

In the event of fire, wear protective clothing and use breathing apparatus that is independent of the ambient air.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions

In case of broken articles, use protective equipment. Evacuate area.

For non-emergency personnel

Protective equipment

Wear protective gloves/protective clothing/eye protection/face protection.

Emergency procedure

Ventilate affected area.

For emergency responders

Use appropriate respiratory protection. Personal protection equipment

Methods and material for containment and cleaning up

For containment

Collect materials needed to clean up broken bulb: stiff paper or cardboard; sticky tape; damp paper towels or disposable wet wipes (for hard surfaces); and a glass jar with a metal lid or a sealable plastic bag. Be thorough in collecting broken glass.

For cleaning up

DO NOT VACUUM. Vacuuming is not recommended unless broken glass remains after all other cleanup steps have been taken. Vacuuming could spread mercury-containing powder or mercury vapor. Scoop up glass fragments using stiff paper or cardboard and sticky tape. Place cleanup materials in a sealable container.

Other information

No information available.

SECTION 7: Handling and storage

Precautions for safe handling

Local exhausting

: Under normal circumstances not applicable.

Conditions for safe storage, including any incompatibilities



TWA (8 hours):	0.1 mg/10m ³	C	MERCURY – [according to OSHA PEL]
TWA (8 hours):	2 mg/m ³		TIN (inorganic compounds, except oxides)- [according to ACGIH]
TWA (8 hours):	2 mg/m ³		TIN (inorganic compounds, except oxides)- [according to NIOSH]
TWA (8 hours):	2 mg/m ³		TIN (inorganic compounds, except oxides) – [according to OSHA PEL]
TWA (8 hours):	2 mg/m ³		INDIUM- [according to NIOSH]

C=Ceiling; S=Skin

Remarks exposure limits : none

Appropriate engineering controls: Under normal circumstances not applicable

Exposure controls

Advised personal protection:

Hands:	Under normal circumstances not applicable.
Breakthrough time:	Under normal circumstances not applicable.
Eyes:	Under normal circumstances not applicable.
Inhalation:	Under normal circumstances not applicable.
Skin:	Under normal circumstances not applicable.

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Physical state	: article
Color	: type dependent
Odor	: odorless
Odor threshold (20°C; 1013 mbar)	: not traceable
pH	: not applicable
Melting point/freezing point	: not traceable
Boiling point/range	: not traceable
Flash point/range	: not applicable
Evaporation rate/range	: not applicable
Vapor rate/range	: not applicable
Flammability (solid, gas)	: data not available
Upper/lower flammability or explosive limit	: not applicable



Not applicable.	
Chemical stability	
The substance or mixture is stable under normal conditions.	
Possibility of hazardous reactions	
Reactions with water	: no
Other hazardous conditions	: Data not available.
Conditions to avoid	
Data not available.	
Incompatible materials	
Hazardous reactions with	: none
Hazardous decomposition products	
Hazardous decomposition products at heating	: none

SECTION 11: Toxicological information

Information on toxicological effects	
Acute oral toxicity	
No data available.	
Acute dermal toxicity	
No data available.	
Acute inhalation toxicity	
No data available.	
Skin corrosion/irritation	
The substance or mixture is not classified for skin corrosion/irritation.	
Serious eye damage/irritation	
The substance or mixture is not classified for serious eye damage/irritation.	
Respiratory or skin sensitization	
The substance or mixture is not classified for respiratory or skin sensitization.	
Germ cell mutagenicity	
The substance or mixture is not classified for germ cell mutagenicity.	
Carcinogenicity	

IARC: Group 3: Not classifiable as to its carcinogenicity to humans (Mercury)
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.



Skin	local	:	Not applicable.
	general	:	Not applicable.
Ingestion	local	:	Not applicable.
	general	:	Not applicable.
Inhalation	local	:	Not applicable.
	general	:	Not applicable.
Eyes	local	:	Not applicable.
	Remarks symptoms	:	None

SECTION 12: Ecological information

Toxicity

Ecotoxicity

LC-50: 0.004 mg/l/96H (Fish)	MERCURY	Source : Easi View
EC-50: 0.0205 mg/l/48H (Daphnia)	MERCURY	Source : IFA- Gestis
IC-50: 0.3 mg/l/72H (Algae)	MERCURY	Source : Easi View

Persistence and degradability

Biological oxygen demand:	not applicable
Chemical oxygen demand:	not applicable
Degradability:	not applicable

Bioaccumulative potential

Bioconcentration factor (BCF)	: >2500	MERCURY
-------------------------------	---------	---------

Mobility in soil

Henry Constant	: Not applicable
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Other adverse effects

Remarks on eco-toxicity:	none
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SECTION 13: Disposal considerations

Waste treatment methods

Remainder material or uncleared empty packaging's have to be incinerated in a proper installation or dumped on an approved landfill, in accordance with local and national legislation.



IATA/ICAO : MERCURY CONTAINED IN MANUFACTURED ARTICLES

Transport hazard class(es)

DOT/49CFR : none IMDG/IIMO : none IATA/ICAO : 8 (6.1)

Packing group

DOT/49CFR : none IMDG/IIMO : none IATA/ICAO : none

Environmental hazards

Marine pollutant : no

Special precautions for user

Hazard identification number (ADR/RID) : none
Ems (IMDG/IIMO) : none

Transport in bulk according to Annex II of Marpol and the IBC Code

Data not available.

SECTION 15: Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture

US Federal regulations

SARA 313: Mercury
SARA 311/312: not applicable.
HMIS Classification: not applicable.
U.S. Clean Water Act Section 307 – Toxic Pollutants: Mercury

National inventories

Articles are exempted from the Toxic Substances Control Act Inventory (TSCA-USA).

International inventories

DSL/NDSL: This substance is on the DSL (Mercury, Indium, Bismuth, Tin)

SECTION 16: Other information

Remarks on SDS : Toxic mercury vapors can be released if the lamp is broken.
For transport exemptions consult applicable regulations.



RID	Règlement concernant le transport international ferroviaire des marchandises dangereuses
UN	United Nations
IMDG	International Maritime Dangerous Goods
IMO	International Maritime Organization
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
EmS	Emergency Schedule
SARA	Superfund Amendments and Reauthorization Act
DSL	Canadian Domestic Substances List
NDSL	Canadian Non-Domestic Substances List

* Point to alterations with regard to the previous version.

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From: [Rob Carson](#)
To: [Evans, Tim](#)
Subject: RE: Seed treatments
Date: Tuesday, April 13, 2021 3:51:57 PM
Attachments: [SDS Compiled.pdf](#)

Timothy:

The following list are the seed treatments that we have received in the past 3 yrs. The SDS for these products are attached....Note: In reviewing, we have determined no TCLP pesticides in the SDS

All shipments of seed since January 17 2014 have been with our current supplier. We only utilize one supplier.

Product	Notes
Ex 4	

Duane Berning



ESE Alcohol, Inc.

PO Box 848

Leoti, Kansas 67861

620-375-4519

620-375-4520 (Fax)

Email: deberning@esealcohol.com

Pages 3-161 of Attachment 12 - Ex 4



120 East Davis Street
P.O. Box 30
Fayette, MO 65248-0030

Phone: (660) 248-1911
Fax: (660) 248-1921
www.inovatia.com

ANALYSIS REPORT

Chain of Custody Number: 14-0975
Project Name / Number: N/A / N/A
Date Collected: 08/19/14
Time Collected: 9:00

Bio-Nutrient Storage

Sample Number: Application Solids

Lab Number: 143261

Sample Matrix: Soil

Sample Type: Grab

Analysis	Result	Units	Reporting Limit	Analysis Method	Date - Analyst
Acceleron *	< 330	ug/kg	330	8270/TIC	9/2/2014 - SET
Apron "	< 330	ug/kg	330	8270/TIC	9/2/2014 - SET
Clothianidin **	< 330	ug/kg	330	8270/TIC	9/2/2014 - SET
Captan *	< 330	ug/kg	330	8270/TIC	9/2/2014 - SET
Carboxin "	< 330	ug/kg	330	8270/TIC	9/2/2014 - SET
Concept **	< 330	ug/kg	330	8270/TIC	9/2/2014 - SET
Cruiser **	< 330	ug/kg	330	8270/TIC	9/2/2014 - SET
Dynasty **	< 330	ug/kg	330	8270/TIC	9/2/2014 - SET
Ethylbenzene "	< 330	ug/kg	330	8270/TIC	9/2/2014 - SET
Gaucho **	< 330	ug/kg	330	8270/TIC	9/2/2014 - SET
Helix **	< 330	ug/kg	330	8270/TIC	9/2/2014 - SET
Maxim **	< 330	ug/kg	330	8270/TIC	9/2/2014 - SET
Metalaxyl "	< 330	ug/kg	330	8270/TIC	9/2/2014 - SET
Poncho **	< 330	ug/kg	330	8270/TIC	9/2/2014 - SET
Precise "	< 330	ug/kg	330	8270/TIC	9/2/2014 - SET
Screen *	< 330	ug/kg	330	8270/TIC	9/2/2014 - SET
Thiram *	< 330	ug/kg	330	8270/TIC	9/2/2014 - SET

Notes:

* Presence of analyte screened for by Extracted Ion Current Profiling (EICP), reporting limits are estimated.

** EICP information not available. No extraneous peaks observed but analyte may not be amenable to method employed.

Report Date: 09/08/14

Page Number: 2 of 6

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120 East Davis Street
P.O. Box 30
Fayette, MO 65248-0030

Phone: (660) 248-1911
Fax: (660) 248-1921
www.inovatia.com

ANALYSIS REPORT

Chain of Custody Number: 14-0975
Project Name / Number: N/A / N/A
Date Collected: 08/19/14
Time Collected: 9:00

Irrigation Water Storage
Sample Number: Irrigation Water
Lab Number: 143262
Sample Matrix: Water
Sample Type: Grab

Analysis	Result	Units	Reporting Limit	Analysis Method	Date - Analyst
Accelaron *	< 10	ug/L	10	8270/TIC	9/2/2014 - SET
Apron *	< 10	ug/L	10	8270/TIC	9/2/2014 - SET
Clothianidin **	< 10	ug/L	10	8270/TIC	9/2/2014 - SET
Capton *	< 10	ug/L	10	8270/TIC	9/2/2014 - SET
Carboxin "	< 10	ug/L	10	8270/TIC	9/2/2014 - SET
Concept **	< 10	ug/L	10	8270/TIC	9/2/2014 - SET
Cruiser **	< 10	ug/L	10	8270/TIC	9/2/2014 - SET
Dynasty **	< 10	ug/L	10	8270/TIC	9/2/2014 - SET
Ethylbenzene "	< 10	ug/L	10	8270/TIC	9/2/2014 - SET
Gaucho **	< 10	ug/L	10	8270/TIC	9/2/2014 - SET
Helix **	< 10	ug/L	10	8270/TIC	9/2/2014 - SET
Maxim **	< 10	ug/L	10	8270/TIC	9/2/2014 - SET
Metolaxyl "	< 10	ug/L	10	8270/TIC	9/2/2014 - SET
Poncho **	< 10	ug/L	10	8270/TIC	9/2/2014 - SET
Precise "	< 10	ug/L	10	8270/TIC	9/2/2014 - SET
Screen *	< 10	ug/L	10	8270/TIC	9/2/2014 - SET
Thiram *	< 10	ug/L	10	8270/TIC	9/2/2014 - SET

Notes:

* Presence of analyte screened for by Extracted Ion Current Profiling (EICP), reporting limits are estimated.

** EICP information not available. No extraneous peaks observed but analyte may not be amenable to method employed.

Report Date: 09/08/14
Page Number: 3 of 6

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Phone: (660) 248-1911
Fax: (660) 248-1921
www.inovatia.com

ANALYSIS REPORT

Chain of Custody Number: 14-0975
Project Name / Number: N/A / N/A
Date Collected: 08/19/14
Time Collected: 9:00

Centrifuge Solids
Sample Number: Centrifuge Solids
Lab Number: 143264
Sample Matrix: Soil
Sample Type: Grab

Analysis	Result	Units	Reporting Limit	Analysis Method	Date - Analyst
Acceleron *	< 330	ug/kg	330	8270/TIC	9/2/2014 - SET
Apron *	< 330	ug/kg	330	8270/TIC	9/2/2014 - SET
Clothianidin ***	< 330	ug/kg	330	8270/TIC	9/2/2014 - SET
Captan *	< 330	ug/kg	330	8270/TIC	9/2/2014 - SET
Carboxin *	< 330	ug/kg	330	8270/TIC	9/2/2014 - SET
Concep **	< 330	ug/kg	330	8270/TIC	9/2/2014 - SET
Cruiser **	< 330	ug/kg	330	8270/TIC	9/2/2014 - SET
Dynasty ***	< 330	ug/kg	330	8270/TIC	9/2/2014 - SET
Ethylbenzene *	< 330	ug/kg	330	8270/TIC	9/2/2014 - SET
Gaucho **	< 330	ug/kg	330	8270/TIC	9/2/2014 - SET
Helix **	< 330	ug/kg	330	8270/TIC	9/2/2014 - SET
Maxim **	< 330	ug/kg	330	8270/TIC	9/2/2014 - SET
Metalaxyl *	< 330	ug/kg	330	8270/TIC	9/2/2014 - SET
Poncho **	< 330	ug/kg	330	8270/TIC	9/2/2014 - SET
Precise *	< 330	ug/kg	330	8270/TIC	9/2/2014 - SET
Screen *	< 330	ug/kg	330	8270/TIC	9/2/2014 - SET
Thiram *	< 330	ug/kg	330	8270/TIC	9/2/2014 - SET

Notes:

* Presence of analyte screened for by Extracted Ion Current Profiling (EICP), reporting limits are estimated.

** EICP information not available. No extraneous peaks observed but analyte may not be amenable to method employed.

Report Date: 09/08/14
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ANALYSIS REPORT

Centrifuge Settling
Basin Influent

Sample Number: Centrifuge Influent

Lab Number: 143265

Sample Matrix: Water

Sample Type: Grab

Chain of Custody Number: 14-0975
Project Name / Number: N/A / N/A
Date Collected: 08/19/14
Time Collected: 9:00

Analysis	Result	Units	Reporting Limit	Analysis Method	Date - Analyst
Acceleron *	< 10	ug/L	10	8270/TIC	9/2/2014 - SET
Apron "	< 10	ug/L	10	8270/TIC	9/2/2014 - SET
Clothianidin **	< 10	ug/L	10	8270/TIC	9/2/2014 - SET
Captan *	< 10	ug/L	10	8270/TIC	9/2/2014 - SET
Carboxin "	< 10	ug/L	10	8270/TIC	9/2/2014 - SET
Concep ***	< 10	ug/L	10	8270/TIC	9/2/2014 - SET
Cruiser ***	< 10	ug/L	10	8270/TIC	9/2/2014 - SET
Dynasty **	< 10	ug/L	10	8270/TIC	9/2/2014 - SET
Ethylbenzene "	< 10	ug/L	10	8270/TIC	9/2/2014 - SET
Gaucha **	< 10	ug/L	10	8270/TIC	9/2/2014 - SET
Helix **	< 10	ug/L	10	8270/TIC	9/2/2014 - SET
Maxim ***	< 10	ug/L	10	8270/TIC	9/2/2014 - SET
Metalaxyl *	< 10	ug/L	10	8270/TIC	9/2/2014 - SET
Poncho **	< 10	ug/L	10	8270/TIC	9/2/2014 - SET
Precise *	< 10	ug/L	10	8270/TIC	9/2/2014 - SET
Screen *	< 10	ug/L	10	8270/TIC	9/2/2014 - SET
Thiram *	< 10	ug/L	10	8270/TIC	9/2/2014 - SET

Notes:

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From: [Evans, Tim](#)
To: [deberning esealcohol.com](#); [Rob Carson](#)
Cc: [Thomas, Colleen](#)
Subject: Additional Notice of Preliminary Findings (NOPFs)
Date: Friday, April 16, 2021 1:54:00 PM

Hello Duane and Rob,

After further review of information gathered during and subsequent to the March 12, 15, and 16, 2021 inspection, the following NOPFs are being added:

Waste Determination Not Conducted for Waste Fluorescent Lamps and Mercury Vapor

Bulbs, 40 CFR 262.11 – During the inspection I observed 4-foot and 8-foot fluorescent lamps and mercury vapor bulbs in use throughout the facility. I asked you both if ESE had conducted a waste determination for waste or spent fluorescent lamps and bulbs. You both stated that a waste determination had not been made for the waste or spent fluorescent lamps and bulbs generated at the facility. At the time of the inspection, ESE did not have any spent lamps or bulbs accumulated or stored. Subsequent to the inspection, you provided me with Safety Data Sheets (SDSs) for lamps and bulbs used at the facility. The 4-foot lamp and mercury vapor bulb SDSs provided a range for the amount of mercury and an incomplete unit of measure. The SDS provided to me for the 8-foot lamps listed a range for the amount of mercury and percentage of weight of the lamp. Therefore, ESE Alcohol would need to make a waste determination for mercury containing lamps and bulbs when they become waste or are spent.

Waste Determination Not Conducted for Reverse Osmosis Filters, 40 CFR 262.11 – Because the facility has been involved in a KDHE Voluntary Cleanup Investigation (VCI) since 2002, I asked you both for groundwater monitoring sampling analytical results. Elevated levels of chloride, sodium, and arsenic concentrations are monitored as part of the ongoing VCI. During review of groundwater monitoring sampling analytical results, I also noted the presence of barium.

I asked you both what ESE's water supply was for the facility. Mr. Carson stated that the facility's water supply was groundwater from an onsite well. According to Mr. Carson, groundwater run through the reverse osmosis system supplies water to the cooling tower and boiler.

I asked you both if it was possible that elevated levels of contaminants, specifically, arsenic would be present in reverse osmosis filters generated at the facility. You both said you did not know if arsenic would be found in filters. I also asked you both if a waste determination had been conducted for spent reverse osmosis filters. You both stated a waste determination had not been conducted for spent reverse osmosis filters. Therefore, ESE Alcohol would need to make a waste determination for spent reverse osmosis filters when they become waste or are spent.

Please provide an estimated time when you intend to submit your response to the additional NOPFs.

If you have any questions, or need clarification regarding the additional citations, please feel free to contact me.

Thank you,

Tim Evans | Life Scientist

Enforcement & Compliance Assurance Division | Chemical Branch | RCRA Section

U.S. EPA Region 7

11201 Renner Blvd. Lenexa, KS 66219

Phone 913-551-7663

Evans.Timothy@epa.gov | www.epa.gov

PROCESSED SOLIDS APPLIED

YEAR	ACRES	TONS APPLIED	TON/ACRE
2020	1,774	14,495	6.39
2019	1,216	7,417	5.92
2018	962	5,747	5.96
2017	1,013	8,377	8.42
2016	763	6,830	8.95
2015	1,101	10,948	10.40
2014	1,019	9,051	10.25
2013	1,134	13,663	12.56
2012	1,661	18,953	10.55
2011	1,337	12,416	9.29
2010	1,492	15,320	10.27
2009	1,453	15,520	10.68
2008	1,528	13,630	8.92
2007	1,483	16,100	11.26
2006	956	11,900	12.45
2005	764	10,514	13.76
2004	494	5,544	11.25
2003	1,550	17,548	12.39
2002	868	12,026	13.86
2001	1,193	16,344	13.09
2000	1,192	16,232	12.79
1999	1,051	12,208	11.20
1998	596	5,754	8.99